noranda

annual report 1980

ANNUAL MEETING

April 24, 1981, 2:30 p.m.
Royal York Hotel, Toronto, Canada

OWNERSHIP

	Registered Shareholders	Ownership
Canada	32,700	94%
U.S.A.	3,000	4%
Other	500	2%

REFERENCE

In this report unless indicated otherwise, — divisions and/or companies are wholly owned; production is for the calendar year 1980, tons means short tons of 2,000 lbs.; mineral inventories are as at Dec. 31/80, financial data is in Canadian dollars and divisional earnings are earnings after taxes but before borrowing costs.

TRANSFER AGENT AND REGISTRAR

Canada Permanent Trust Company, Toronto, Vancouver, Calgary, Winnipeg, Montreal, Saint John, N.B., Halifax, Charlottetown and St. John's, Nfld.

The Chase Manhattan Bank, New York, N.Y.

COVER

Giraffes underground at Mines Gaspé.

An English or French edition of this Report may be obtained from the head office of the Company.

On peut se procurer la version française ou anglaise de ce rapport en en faisant la demande au siège social de la compagnie, B.P. 45, Commerce Court West, Toronto, Ontario M5L 1B6.

This report, excepting the cover, is printed on Fraser BP Opaque, English Finish paper.

Multinational Guidelines

In last year's report, Noranda declared its commitment to conduct business outside Canada in conformity with the guidelines for multinational enterprises adopted by the Organization for Economic Co-operation and Development.

Furthering U.N. efforts to bring about a new economic order, in 1980 the Independent Commission on International Development Issues, chaired by Willy Brandt, presented its report "A Programme for Survival".

Noranda subscribes to the principles of that report, which stresses interdependence and global responsibility for the economic and social development of the world's peoples. As a resource development company, we are prepared to participate in the economic development of the south wherever our technical, financial and marketing skills are wanted and where the projects are economically viable.

Noranda Mines Limited
P.O. Box 45, Commerce Court West
Toronto, Ont., Canada M5L 1B6

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To the Shareholders:

TAKE NOTICE that the Fifty-Seventh Annual and a General Meeting of the Shareholders of NORANDA MINES LIMITED will be held in the Concert Hall, at the Royal York Hotel in the City of Toronto, Ontario, on Friday, the 25th day of April, 1980, at the hour of 2:30 o'clock (Toronto time) in the afternoon for the following purposes:

(i) to receive reports and financial statements;

(ii) to elect directors;

(iii) to appoint auditors and authorize the directors to fix their remuneration;

(iv) to consider and, if thought fit, to confirm, with or without variation, Special Resolution Number 3 of the Corporation passed by the directors on February 19, 1980, authorizing an increase in the authorized capital of the Corporation by increasing the number of common shares from 120,000,000 to 150,000,000 and by creating 5,000,000 preferred shares with a par value of $100 each.

A copy of the reports and the financial statements to be laid before the Meeting is forwarded herewith. A copy of Special Resolution Number 3 is Exhibit 'A' to the Information Circular accompanying this Notice.

Shareholders who are unable to attend the meeting in person are requested to date, sign and return the enclosed form of proxy in the return envelope provided.

DATED this 14th day of March, 1980.

By Order of the Board,

R. C. ASHENHURST,
Secretary.

noranda

INFORMATION CIRCULAR

This Information Circular accompanies the Notice of the Annual and a General Meeting of the Shareholders of Noranda Mines Limited (the "Corporation") to be held on April 25, 1980 and is furnished in connection with the solicitation by the management of the Corporation of proxies for use at the Meeting. The solicitation will be primarily by mail but proxies may also be solicited by regular employees of the Corporation. The cost of such solicitation will be borne by the Corporation.

A proxy in the form enclosed with the Notice of Meeting confers discretionary authority with respect to amendments or variations to the matters identified in the Notice or other matters which may properly come before the Meeting.

The shares represented by such a proxy will be voted by the persons named therein and, where a choice is specified, will be voted in accordance with the specification. **Where no choice is specified such shares will be voted for confirmation of Special Resolution Number 3.**

A shareholder has the right to appoint a person (who need not be a shareholder) to represent him at the Meeting other than the persons designated in the form of proxy enclosed with the Notice of Meeting. Such right may be exercised by inserting the name of such person in the blank space provided in such form of proxy.

A proxy in the form enclosed with the Notice of Meeting may be revoked at any time before it is exercised.

VOTING SHARES AND PRINCIPAL HOLDERS THEREOF

At the close of business on March 3, 1980, 112,707,708 common shares without par value of the Corporation were outstanding. Each share entitles the holder to one vote at all meetings of Shareholders. Shareholders of record at the time of the Meeting are entitled to vote at the Meeting.

The management of the Corporation understands that at March 3, 1980 Zinor Holdings Limited owned 23,980,202 common shares, or approximately 21.2% of the outstanding shares of the Corporation and Brascan Limited owned 14,228,190 common shares, or approximately 12.6% of the outstanding shares of the Corporation.

ELECTION OF DIRECTORS

It is proposed to nominate the persons listed below for election as directors of the Corporation to serve until the next Annual Meeting of the Shareholders of the Corporation or until their successors are duly elected or appointed, unless any such person is not available to act as a director, in which event a substitute may be nominated.

Proposed Nominees	Principal Occupation	Director Since	Number of Shares Owned March 3, 1980
James C. Dudley, New York, New York.	President, Dudley & Wilkinson Inc. (Investment Counsel)	1970	300
Louis Hébert, Montreal, Quebec.	Company Director.	1968	3,000
* William James, Toronto, Ontario.	Executive Vice-President, Noranda Mines Limited.	1968	41,905
* A. J. Little, F.C.A., ** Toronto, Ontario	Company Director	1974	12,307
Leonard G. Lumbers, Toronto, Ontario.	Chairman, Noranda Manufacturing.	1962	24,250
David E. Mitchell, Calgary, Alberta.	President and Chief Executive Officer, Alberta Energy Company Ltd. (Oil and gas exploration and production)	1973	11,100

Proposed Nominees	Principal Occupation	Director Since	Number of Shares Owned March 3, 1980
* André Monast, Q.C., ** Quebec, Quebec.	Partner in the legal firm of Létourneau & Stein.	1966	9,028
Thomas H. McClelland, Vancouver, British Columbia	Chairman of the Board, Placer Development Limited. (Mining)	1975	310
W. Darcy McKeough, Cedar Springs, Ontario	President, Union Gas Limited. (Gas distribution and sales)	1979	1,000
* Alfred Powis, ** Toronto, Ontario.	Chairman and President, Noranda Mines Limited.	1964	65,836
* William P. Wilder, ** Toronto, Ontario.	President and Chief Executive Officer, The Consumers' Gas Company. (Oil and gas exploration and production and gas distribution and sales)	1966	20,000
* Adam H. Zimmerman, F.C.A., Toronto, Ontario.	Executive Vice-President, Noranda Mines Limited.	1974	54,185

* Members of the Executive Committee.
** Members of the Audit Committee.

NOTES: (1) Shareholdings in subsidiaries:

Mr. William James owns 1,000 common shares of Brunswick Mining and Smelting Corporation Limited.

Mr. L. G. Lumbers owns 1,000 common shares of Brunswick Mining and Smelting Corporation Limited.

Mr. André Monast, Q.C., owns 10 common shares of Brunswick Mining and Smelting Corporation Limited.

Mr. Alfred Powis owns 10 common shares of Brunswick Mining and Smelting Corporation Limited and 3,113 common shares of Fraser Inc.

Mr. Adam H. Zimmerman owns 7,483 common shares of Fraser Inc.

(2) The information as to shares beneficially owned, not being within the knowledge of the Corporation, has been furnished by the respective nominees.

REMUNERATION OF DIRECTORS AND SENIOR OFFICERS

The following table sets forth the aggregate remuneration paid or payable by the Corporation and its subsidiaries to its directors and certain officers in respect of the fiscal year ended December 31, 1979 and the estimated aggregate cost to the Corporation and its subsidiaries for that year of all pension benefits proposed to be paid to those directors and officers under existing plans in the event of retirement at normal retirement age:

		Nature of Remuneration	
		Aggregate remuneration	Estimated aggregate cost of pension benefits
(i)	Directors (Total number: 12)		
	(A) from the Corporation and its wholly-owned subsidiaries	$ 153,500	
	(B) from partially-owned subsidiaries:		
	Brenda Mines Limited	11,875	
	Brunswick Mining and Smelting Corporation Limited	11,800	
	Fraser Inc.	4,500	
	Wire Rope Industries of Canada Limited	12,000	
	Total	$ 40,175	
(ii)	Five senior officers: from the Corporation	$ 767,576	$ 68,870
(iii)	Officers receiving over $50,000 (includes (ii)) from the Corporation	$ 1,654,499	$ 151,440

Under a share purchase plan established in 1969, the Corporation from time to time advances money by way of interest-free loan to a trustee to be applied in payment of the subscription price of shares of the Corporation to be purchased by the trustee for sale to key employees. Indebtedness of directors and/or senior officers under the plan during the year ended December 31, 1979 was and at present is as follows:

Name and Municipality of residence	Largest amount during year ended December 31, 1979	Amount presently outstanding
Alfred Powis, Toronto, Ontario	$ 486,572	$ 226,475
William James, Toronto, Ontario	307,187	307,187
Adam H. Zimmerman, Toronto, Ontario	274,804	182,250
John A. Hall, Don Mills, Ontario	216,084	121,187
Donald E. G. Schmitt, Toronto, Ontario	223,296	120,500
R. Carl Ashenhurst, Mississauga, Ontario	87,437	87,437
Alexander G. Balogh, Oakville, Ontario	136,587	72,800
E. Kendall Cork, Toronto, Ontario	223,316	107,350
Donald H. Ford, Mississauga, Ontario	148,875	148,875
Keith C. Hendrick, Toronto, Ontario	219,764	146,625
J. Oswald Hinds, Toronto, Ontario	177,867	112,075
Bernard H. Morrison, Mississauga, Ontario	143,675	143,675
R. Peter Riggin, Toronto, Ontario	205,353	119,725
Total	$ 2,850,817	$ 1,896,161

At March 3, 1980, 46 other key employees had loans totalling $2,708,315 under the plan.

APPOINTMENT OF AUDITORS

The persons named in the form of proxy enclosed with the Notice of Meeting intend to vote for the appointment of Clarkson Gordon, Chartered Accountants, Toronto at a remuneration to be fixed by the directors.

SPECIAL RESOLUTION NUMBER 3

The Shareholders of the Corporation will be asked to consider and, if thought fit, to confirm Special Resolution Number 3, a copy of which is Exhibit 'A' hereto. In order to be effective, the Special Resolution must be passed by two-thirds of the votes cast at the Annual and General Meeting.

The Special Resolution provides for an increase in the number of authorized common shares of the Corporation from 120,000,000 to 150,000,000 and for the creation of 5,000,000 preferred shares with a par value of $100 each. The preferred shares are issuable in series, each series to consist of the number of shares determined by the directors. The characteristics of each series, such as the dividend rate, redemption terms and any conversion rights, are to be fixed by the directors. The increase in the authorized capital of the Corporation is necessary to provide flexibility with respect to financing and acquisitions in the future.

MATERIAL TRANSACTION

On November 16, 1979 the Corporation raised $266,000,000 by the sale of 14,000,000 common shares from treasury at $19 per share to Zinor Holdings Limited, 700 - 1030 West Georgia Street, Vancouver, British Columbia. The shareholders of Zinor are Kerr Addison Mines Limited (27.4%), Placer Development Limited (36.3%) and Frenswick Holdings Limited (36.3%). Kerr Addison transferred 5,190,666 common shares of the Corporation, Placer transferred 4,789,536 common shares of the Corporation and paid approximately $40 million and Frenswick paid approximately $131 million to acquire their respective interests in Zinor. The shareholders of Frenswick in turn are Brenda Mines Ltd. (38.2%), Brunswick Mining and Smelting Corporation Limited (38.2%) and Fraser Inc. (23.6%).

OTHER BUSINESS

The management of the Corporation knows of no matters to come before the Meeting other than the matters referred to in the Notice of Meeting.

DATED this 14th day of March, 1980.

Exhibit "A"
SPECIAL RESOLUTION NUMBER 3

RESOLVED by way of Special Resolution that:

1. The Articles of the Corporation be amended to:

   (i) increase its authorized capital by increasing the number of authorized common shares without par value ("Common Shares") of the Corporation from 120,000,000 to 150,000,000;

   (ii) increase its authorized capital by creating 5,000,000 preference shares with a par value of $100 each ("Preferred Shares");

   (iii) declare that the authorized capital of the Corporation, after giving effect to the foregoing, will consist of 5,000,000 Preferred Shares and 150,000,000 Common Shares; and

   (iv) provide that the Preferred Shares shall have attached thereto, the following preferences, rights, conditions, restrictions, limitations and prohibitions:

(1) The Preferred Shares may at any time or from time to time be issued in one or more series, each series to consist of such number of shares as may before the issue thereof be determined by the directors. The directors of the Corporation may by resolution fix from time to time before the issue thereof, the designation, preferences, rights, conditions, restrictions, limitations and prohibitions attaching to the Preferred Shares of each series including, without limiting the generality of the foregoing, the rate of preferential dividends, the dates and places of payment thereof, the redemption and/or purchase prices and the terms and conditions of redemption and/or purchase, any conversion rights and any purchase fund or other provisions, the whole to be subject to the following provisions and to amendment of the Articles of the Corporation bringing such resolution into effect.

(2) The Preferred Shares shall be entitled to a preference over the Common Shares and any other shares of the Corporation ranking junior to the Preferred Shares with respect to the payment of dividends and in the distribution of assets in the event of any liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, or other distribution of the assets of the Corporation among its shareholders for the purpose of winding up its affairs.

(3) The Preferred Shares of each series shall rank on a parity with the Preferred Shares of every other series with respect to priority in payment of dividends and in the distribution of assets in the event of any liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, or other distribution of the assets of the Corporation among its shareholders for the purpose of winding up its affairs.

(4) The holders of Preferred Shares shall not be entitled (except as hereinafter specifically provided) to receive notice of or to attend any meeting of the shareholders of the Corporation or to vote at any such meeting (but shall be entitled to have mailed to them copies of the financial statements and the auditors' report thereon) unless and until the Corporation from time to time shall fail to pay eight quarterly dividends on the Preferred Shares of any one series whether or not consecutive and whether or not such dividends have been declared and whether or not there are any moneys of the Corporation properly applicable to the payment of dividends. Thereafter, but only so long as any dividends on any Preferred Shares remain in arrears, the holders of the Preferred Shares of all series shall be entitled to receive notice of and to attend all meetings of the shareholders of the Corporation and shall be entitled to one vote in respect of each Preferred Share held.The holders of Preferred Shares shall also be entitled to receive notice of any meeting of the shareholders called for the purpose of authorizing the dissolution of the Corporation or the sale of its undertaking or a substantial part thereof.

(5) Subject to the provisions relating to any particular series, the Corporation may redeem the whole or any part of the Preferred Shares of any one or more series outstanding from time to time at such price or prices as may be applicable to such series by giving at least 30 days prior notice in writing, to each person who at the date of giving such notice is the registered holder of Preferred Shares to be redeemed, of the intention of the Corporation to redeem such shares. Such notice shall be given by posting the same in a postage paid letter addressed to each such holder of Preferred Shares to be redeemed at the last address of such holder as it appears on the books of the Corporation or, in the event of the address of any holder not so appearing, then to the address of such holder last known to the Corporation; provided that the accidental

failure or omission to give any such notice as aforesaid to one or more of such holders shall not affect the validity of the redemption of the Preferred Shares to be redeemed. Such notice shall set out the redemption price and the date on which the redemption is to take place and, unless all the Preferred Shares held by the holder to whom it is addressed are to be redeemed, shall also set out the number of shares to be redeemed. On and after the date specified for redemption the Corporation shall pay or cause to be paid to the holders of Preferred Shares to be redeemed the redemption price on presentation and surrender at the head office of the Corporation, or at any other place or places within Canada designated by such notice, of the certificate or certificates for Preferred Shares called for redemption. Such payment shall be made by cheque payable at par at any branch in Canada of the Corporation's bankers. Preferred Shares in respect of which the redemption price has been paid as aforesaid shall thereupon be redeemed. In case a part only of the Preferred Shares of any particular series is at any time to be redeemed, the shares to be redeemed shall be selected by lot in such manner as the board of directors shall determine. If a part only of such Preferred Shares represented by any certificate shall be redeemed, a new certificate for the balance shall be issued at the expense of the Corporation. From and after the date specified for redemption in any such notice, the Preferred Shares called for redemption shall cease to be entitled to dividends and the holders thereof shall not be entitled to exercise any of the rights of shareholders in respect thereof except to receive the redemption price therefor, unless payment of the redemption price shall not be duly made by the Corporation upon presentation of certificates in accordance with the foregoing provisions, in which case the rights of such holders shall remain unaffected. At any time after notice of redemption is given as aforesaid, the Corporation shall have the right to deposit the redemption price of any or all Preferred Shares called for redemption with any chartered bank or banks or with any trust company or trust companies in Canada named for such purpose in the notice of redemption to the credit of a special account or accounts in trust for the respective holders of such shares, to be paid to them respectively without interest upon surrender to such bank or banks or trust company or trust companies of the certificate or certificates representing the same. Upon such deposit being made or upon the date specified for redemption in such notice, whichever is the later, the Preferred Shares in respect whereof such deposit shall have been made shall be and be deemed to be redeemed and the rights of the holders thereof shall be limited to receiving without interest their proportionate part of the total redemption price so deposited against surrender of the said certificates held by them respectively. Any interest allowed on any such deposit shall belong to the Corporation.

(6) Subject to the provisions relating to any particular series, the Corporation may purchase (if obtainable) for cancellation the whole or any part of the Preferred Shares of any one or more series outstanding from time to time in the open market (including purchase through or from an investment dealer or any firm holding membership on a recognized stock exchange) or by invitation for tenders addressed to all the holders of record of such series of Preferred Shares outstanding, at the lowest price or prices at which in the opinion of the directors such shares are obtainable but not exceeding such maximum price or prices as may be applicable to such series. In the event that, upon any invitation for tenders made by the Corporation as herein provided, the Corporation shall receive two or more tenders of Preferred Shares of any series at the same price, which when added to any shares already tendered at a lower price or prices, aggregate more than the number for which the Company is prepared to accept tenders, then if any Preferred Shares of such series so tendered at the same price are purchased by the Corporation they shall be purchased as nearly as may be pro rata to the total number of shares offered in each tender, disregarding fractions.

(7) In the event of the liquidation, dissolution or winding up of the Corporation or any other distribution of assets of the Corporation among its shareholders for the purpose of winding up its affairs, the holders of the Preferred Shares shall be entitled to payment of an amount equal to the par value of such shares in the case of any liquidation, dissolution, winding up or other distribution which is involuntary, and to payment of an amount equal to the par value thereof plus the premium on redemption applicable at the date thereof, if any, if the same is voluntary, together in all cases with all unpaid dividends accrued thereon (which shall for such purpose be treated as accruing up to the date of distribution), the whole before any amount shall be paid or any assets of the Corporation distributed to the holders of any Common Shares or shares of any other class ranking junior to the Preferred Shares. Upon payment to the holders of the Preferred Shares of the amount so payable to them, they shall not be entitled to share in any further distribution of assets of the Corporation.

(8) Any amendment to the Articles of the Corporation to delete or vary a preference, right, condition, restriction, limitation or prohibition attaching to the Preferred Shares as a class or to create special shares ranking in priority to or on a parity with the Preferred Shares, in addition to authorization by special resolution, may be authorized by at least two-thirds of the votes cast at a meeting of holders of Preferred

Shares duly called for that purpose and held upon not less than 21 days notice at which the holders of at least a majority of the outstanding Preferred Shares are present or are represented by proxy. If at such meeting the holders of a majority of the outstanding Preferred Shares are not present or represented by proxy within one half hour after the time appointed for such meeting then the meeting shall be adjourned to such date being not less than 21 days thereafter and to such time and place as may be designated by the chairman, and not less than 14 days notice shall be given of the reconvening of such adjourned meeting, but it shall not be necessary in such notice to specify the purpose for which the meeting was originally called. At such adjourned meeting the holders of Preferred Shares present or represented by proxy may transact the business for which the meeting was originally called and a resolution passed by at least two-thirds of the votes cast at such meeeting shall constitute the authorization of the holders of the Preferred Shares. On every poll taken at every such meeting every holder of Preferred Shares shall be entitled to one vote in respect of each Preferred Share held. Subject to the foregoing, the formalities to be observed in respect of the giving or waiving of notice of any such meeting and the conduct thereof shall be those from time to time prescribed in the by-laws of the Corporation with respect to meetings of shareholders.

2. The directors and proper officers of the Corporation be and are hereby respectively authorized to execute such documents, including Articles of Amendment, and to take such other action as they consider necessary or desirable to implement this resolution.

Printed in Canada

noranda
P.O. Box 45, Commerce Court West, Toronto, Canada M5L 1B6

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Highlights ($ millions)

	1980	1979	1978	1977	1976
Revenue	**2,889.3**	2,484.7	1,691.1	1,395.8	1,234.8
Income and production taxes	**242.2**	227.0	90.5	22.7	25.1
Share of earnings in Associates	**83.1**	70.1	49.3	33.5	26.9
Earnings	**408.4**	394.5	135.2	71.8	46.7
Working Capital	**821.5**	687.4	281.6	167.3	197.5
Long-term debt	**580.5**	602.5	604.1	588.9	603.4
Shareholders' equity	**2,001.0**	1,463.2	884.4	758.7	715.3

Total Employment

	1980			1979
	Noranda & Subsidiaries	Associates	Totals	Totals
Canada				
Mining & Metallurgy	13,000	4,500	17,500	15,800
Manufacturing	4,900	100	5,000	5,150
Forest Products	4,100	15,000	19,100	15,000
	22,000	19,600	41,600	35,950
International				
Mining & Metallurgy	1,900	6,000	7,900	7,000
Manufacturing	2,800	9,400	12,200	9,900
Forest Products	1,200	1,300	2,500	2,500
	5,900	16,700	22,600	19,400
Totals	27,900	36,300	64,200	55,350

DIRECTORS

James C. Dudley,
Chairman, Dudley & Wilkinson Inc., New York
Elected 1970

* **William James,**
Executive Vice-President, Noranda Mines, Toronto
Elected 1968

L. G. Lumbers,
Chairman, Noranda Manufacturing, Toronto
Elected 1962

Thomas H. McClelland,
Chairman, Placer Development Limited, Vancouver
Elected 1975

D. S. McGiverin,
President and Chief Executive Officer,
Hudson's Bay Company, Toronto
Appointed 1980

* **W. Darcy McKeough,**
President, Union Gas Limited, Chatham
Elected 1979

D. E. Mitchell,
President, Alberta Energy Company Ltd., Calgary
Elected 1973

* **André Monast,**
Partner in the legal firm of Létourneau & Stein, Quebec
Elected 1966

* **Alfred Powis,**
Chairman and President, Noranda Mines, Toronto
Elected 1964

Antoine Turmel,
Chairman and Chief Executive Officer,
Provigo Inc., Montreal
Appointed 1981

* **W. P. Wilder,**
President and Chief Executive Officer,
Hiram Walker Resources Ltd., Toronto
Elected 1966

* **Adam H. Zimmerman,**
Executive Vice-President, Noranda Mines, Toronto
Elected 1974

* Member of the Executive Committee

Honorary Directors

J. R. Bradfield, Honorary Chairman
F. M. Connell, deceased
A. O. Dufresne
L. Hébert
A. J. Little
R. V. Porritt
W. S. Row
J. D. Simpson
L. H. Timmins

OFFICERS

Alfred Powis, Chairman & President

William James, Executive Vice-President

Adam H. Zimmerman, Executive Vice-President

E. K. Cork, Senior Vice-President — Treasurer

D. H. Ford, Senior Vice-President — Comptroller

J. A. Hall, Senior Vice-President — Mines

K. C. Hendrick, Senior Vice-President — Sales

J. O. Hinds,
Senior Vice-President — Exploration & Development

R. P. Riggin, Senior Vice-President — Corporate Relations

D. E. G. Schmitt, Senior Vice-President — Mines

R. C. Ashenhurst, Vice-President and Secretary

A. G. Balogh, Vice-President — Metallurgy

J. M. Gordon,
Vice-President — Mines, Central Canada

F. X. Koch,
Vice-President — Engineering & Construction

C. Marcoux, Vice-President — Mines, Quebec

G. H. Montgomery, Vice-President — Mines, B.C.

B. H. Morrison, Vice-President — Metallurgy

J. M. Slack, Vice-President — Mine Development

J. C. White, Vice-President — Mines

B. H. Grose, Assistant Secretary

W. J. Barbour, Assistant Treasurer

B. C. Bone, Assistant Treasurer

Chief Officers of Subsidiaries

B. R. Allan, President, Noranda Aluminum

J. P. Fisher, President, Fraser Inc.

R. L. Henry, President, Noranda Metal Industries

R. T. Kenny, President and Chief Executive Officer
Maclaren Power & Paper

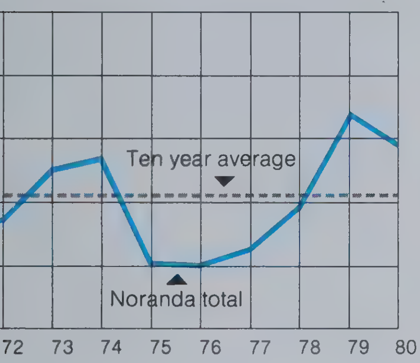
L. E. Londen, President, Northwood Mills

J. A. Masters, President, Canadian Hunter Exploration

J. H. Stevens, Chairman and Chief Executive Officer,
Canada Wire and Cable

Directors' Report to Shareholders

Return on net assets



EARNINGS AND DIVIDENDS

Earnings of $408 million were slightly higher than the $395 million earned in 1979, but earnings per share were lower due to the substantial increase in the number of shares outstanding. Earnings per share from the various divisions were as follows:

EARNINGS PER SHARE FROM	1980	1979	AVERAGE 1976-80
Mining and Metallurgy	$2.68	$3.55	$1.83
Manufacturing	.84	.80	.52
Forest Products	.74	.76	.61
	$4.26	$5.11	$2.96
Less: cost of borrowing	.20	.41	.49
	$4.06	$4.70	$2.47
Return on net assets	14.7%	17.1%	11.6%

Dividends of 30¢ per share were paid in each of the first three quarters, increasing to 35¢ in the fourth quarter. For the year, dividends totalled $1.25 per share compared with 85¢ in 1979.

Weak economic conditions throughout the year in the United States, and in the latter part of the year in Europe and Japan, had an uneven impact on demand and prices for products of the Noranda Group. Average prices for zinc, molybdenum and wood products were lower than in 1979. On the other hand, average prices for copper, precious metals, aluminum, pulp and paper were higher, although significant weakness began to develop in some of these products towards the end of the year.

Mining and metallurgical earnings were less than those of 1979 in total, and considerably less per share due to the larger number of shares outstanding. Product prices, while mixed, on balance were somewhat above 1979 levels, but not nearly enough to offset the impact of inflation. Moreover, in general, prices were at their highest levels near the start of the year, declining erratically thereafter, which required substantial writedowns in the carrying value of inventories. A profit of 47¢ per share was recorded on the sale of the Koongarra uranium property in Australia. On the other hand, strikes and equipment problems reduced earnings by 22¢ per share, largely in the third quarter.

Manufacturing earnings improved both in total and per share. The major factor was a strong performance by the aluminum operations, where increases in prices received more than offset higher costs. Wire and cable results were also gratifying. However, earnings of Noranda Metal Industries were depressed by extremely weak markets for brass mill products and production problems at the nuclear tube mill.

Very weak demand and prices for wood products depressed earnings from forest products operations, particularly those in Western Canada. Aggregate earnings increased over 1979, and earnings per share were about the same. However, 1980 results include the earnings of Maclaren Power & Paper from February 1. Without this, the year's earnings from forest products would have been substantially less than in 1979.

Despite high interest rates, the cost of borrowing was significantly lower due to Noranda's improved financial condition.

The geographic breakdown of operating earnings in 1980 and 1979, before exploration and borrowing costs, was approximately as follows:

	1980	1979
Maritime provinces	9%	14%
Quebec	32	34
Ontario	15	14
Western provinces	23	24
Total Canada	79%	86%
Foreign	21	14
Total	100%	100%

FINANCIAL POSITION

Capital spending in 1980 totalled a record $381 million. Of this amount, $143 million was accounted for by routine expenditures for environmental control, improved efficiency and main-

tenance of production. The balance of $238 million generally comprised expenditures on a wide variety of new projects and expansions, the largest single item being Noranda's $76 million share of Canadian Hunter development drilling and plant construction. With construction on several major new projects about to begin, a further increase in capital spending is expected in 1981.

Despite the high level of capital spending, Noranda's financial position continued to improve during 1980 due to a reasonable level of earnings and the acquisition of Maclaren Power & Paper, which has a very strong balance sheet. Net working capital increased by $134 million while net short term debt (i.e. short term debt less cash and equivalent) was eliminated. Long term debt was reduced by $22 million, while net worth increased by $538 million.

MAJOR DEVELOPMENTS

Excluding routine expenditures and the Canadian Hunter program, but including money already spent, Noranda and subsidiaries are presently involved in major new projects involving aggregate capital spending of some $900 million. In addition, major projects being undertaken by affiliates involve aggregate expenditures of some $1.4 billion.

During 1980, programs to expand mine production at Brunswick and Bell Copper were virtually completed, as was the program to place the oxide portion of the Lakeshore copper orebody in Arizona back in production. Production started at the Lyon Lake copper-zinc orebody in Ontario and the small Camlaren gold property in the Northwest Territories.

Development continued at the Gallen and New Insco base metal properties in Quebec, the F Group copper-zinc orebodies in Ontario, the Goldstream copper property in British Columbia, the Blackbird cobalt-copper property in Idaho, various lead-zinc-silver orebodies near Park City, Utah, the Hopewell phosphate property in Florida, the Grey Eagle orebody in California, and the Greens Creek base and precious metals property in Alaska.

Suitable financing for the Andacollo copper project in Chile could not be arranged, and the property has been returned to our Chilean partners. The Koongarra uranium property in Australia was sold, with U.S.$45 million having been received in 1980. A further amount of approximately U.S.$75 million will be received if and when a decision is made to place the orebody in production.

Work is underway on a new roaster and acid plant at the Canadian Electrolytic Zinc plant, and an oxygen plant and other facilities are being installed to enhance operating efficiencies and environmental control at the Horne smelter. The feasibility of an electrolytic zinc reduction plant in New Brunswick is under study.

An active program of development drilling at Elmworth/Wapiti added significantly to Canadian Hunter's reserves of natural gas, and Noranda's share of production from this area should increase to at least 68 million cubic feet per day by the spring of 1981 from an average level of 21 million cubic feet in 1980.

Approval has been given to addition of a third potline at the Noranda Aluminum reduction plant, which will increase capacity to 225,000 tons per year from the present level of 140,000 tons. Canada Wire and Cable is installing a continuous cast rod mill at Montreal East.

The decision has been made to rebuild Fraser's pulp mill at Atholville, N.B., and a substantial program of expansion and modernization is under study by Maclaren Power & Paper.

Among affiliated companies, Placer has two significant silver-base metal deposits under development, with the deposit in British Columbia now in initial production and work on the Mexican project proceeding well. The programs by Northwood Pulp to double the capacity of its pulp mill at Prince George, B.C. and to build a new waferboard plant in Minnesota are generally on schedule and within budget. During the year, British Columbia Forest Products purchased the Elk River Timber Company and a one-third interest in the assets formerly owned by Rayonier Canada, which include two pulpmills, three sawmills and extensive timber holdings. These acquisitions materially strengthened BCFP's timber position, while work continued on the installation of a third newsprint machine and thermomechanical pulp facility at its Crofton, B.C. mill and a start was made on a major forest products complex in Alberta.

GENERAL BUSINESS ENVIRONMENT

Canada's future depends heavily on secure supplies of energy, which requires among other things increased domestic production of petroleum products. In this context, the federal government's budget of October 28, which dealt largely with a new National Energy Program, is most disturbing.

The objectives of the Program seem to be more revenues for the federal government, increased Canadian ownership of the petroleum industry (in particular through state ownership), and enhanced self-sufficiency, but very much in that order of priority. In fact, the pursuit of the first two objectives will seriously impair Canada's ability to achieve the third, with the result that dependence on oil from inherently unreliable sources will increase.

Specifically, the impact on the pricing formula and the various tax increases will be to reduce seriously the industry's future cash flows in relation to what it had previously expected and on which its pre-budget plans had been based. This will obviously have a detrimental impact on the level of future energy development. In addition, the

confrontation between the producing provinces and the federal government that has resulted from the Program has dealt a further severe blow to prospects for self-sufficiency. The impact will be severe, not only in terms of domestic energy supplies but also in terms of the level of economic activity throughout Canada.

ORGANIZATION

The increasing pace of activity, particularly in the mining and metallurgical area, resulted in a change in the organization structure during the year. Seven new vice-presidents were appointed, and seven existing vice-presidents were appointed senior vice-presidents.

In October, Mr. A. J. Little retired from the Board and was replaced by Mr. D. S. McGiverin of Toronto, President of the Hudson's Bay Company. In February, 1981, Mr. Louis Hébert retired from the Board and was replaced by Mr. Antoine Turmel of Montreal, Chairman of Provigo, Inc. The directors record their appreciation for the significant contributions made by Messrs. Little and Hébert, and are pleased that they have agreed to continue their association with Noranda as Honorary Directors.

OUTLOOK

Despite its severity, the impact of the current recession on Noranda's results has been totally different from that of the recession that began in 1974. The relatively low value of the Canadian dollar and high prices for precious metals have been contributing factors. However, the major factor has been the fact that, for many commodities, relatively little new production capacity has been added in recent years and, as a result, massive surplus inventories have not built up as in previous recessions.

There are several interrelated reasons for this. In mining, the level of exploration in real terms declined at an alarming rate in much of the world in the 1970's, due initially to a hostile political environment exacerbated later by the economic and financial problems created by inflation and the prolonged recession. For many commodities, prices have been (and remain) well below the levels needed to justify anything but exceptional new developments. Finally, the financing of major developments involving a long lead time is extremely difficult in an inflationary environment.

With the probability that weak economic conditions and continued high rates of inflation will persist throughout much of 1981, a stagnant or declining earnings performance by Noranda seems likely. However, if the expected economic recovery does begin towards the end of the year, it could quickly result in shortages and higher prices for a number of commodities, and 1982 could be a very good year for Noranda.

In the context of a need for a new capacity, Noranda has available a number of attractive opportunities and the financial resources to exploit them. A considerable number of new projects are underway which should make a material contribution to earnings in the years ahead.

Once again, the Directors wish to express their gratitude for the loyal, dedicated and highly effective efforts of employees at all levels throughout the Noranda Group.

On behalf of the Board

Chairman and President.

Toronto, Canada,
February 20, 1981.

Exploration
Oil and Gas

Financial

$ Millions	1980	1979
NORANDA'S SHARE		
Sales Revenue	18.1	9.2
Operating Profit	8.1	1.8
Net Assets Employed	269.0	101.7

Canadian Hunter Joint Venture (75%)

PRODUCTION	Total	Noranda Share
OIL AND NATURAL GAS LIQUIDS		
Thousands of Barrels		
Gross	81.9	60.2
Net of Royalty interests	62.5	45.9
GAS		
Millions of cubic feet		
Gross	12,640	9,289
Net of Royalty interests	10,362	7,613

Gas production rose by 40% over the prior year as a result of the first full year of production through the Elmworth and Wapiti plants. Production was restricted with reduced sales and increased supply from Elmworth and other new fields placed in production in 1979. Hunter, like the rest of the industry, was producing at about 75% of potential output.

Gas processing facilities at Elmworth and Wapiti were expanded from 50 million cubic feet (MMcf) per day each to 200 MMcf per day and 75 MMcf per day respectively. These expanded facilities are required to handle increased gas sales in 1981 when Trans Canada daily contract rates will be based on reserves. Trans Canada's reserve calculation for daily rates at Elmworth and Wapiti on the basis of 1 MMcf for each 7.3 billion cubic feet (Bcf) of reserves was not completed by year-end. This determination should be available early in the new year, retroactive for purpose of establishing take or pay volumes to November 1, 1980.

Gas production at South Gold Creek, 25 miles south of Wapiti, began in August 1980 at 10.0 MMcf per day (Noranda share — 2.0 MMcf per day). Plant construction is underway at Karr, immediately to the east of Gold Creek, where export sales to Pan Alberta commence late in 1981. Initial rate at the Karr plant is 40 MMcf per day (Noranda share — 8 MMcf per day).

Land acquisitions at Alberta and British Columbia Crown sales totalled 30,370 net acres. Hunter's land position at year end was:

	Gross Acres	Net Acres
Leases	1,419,880	715,337
Reservations, Licences, Permits*	7,582,105	5,915,634
Total	9,001,985	6,630,971

*Includes 5,905,417 (4,871,966 net) acres in Nechako Basin, British Columbia.

Canadian Hunter participated in the drilling of 105 exploratory and development wells, resulting in 4 oil and 90 gas producers, a success ratio of 90%.

Exploratory drilling is now concentrated in the area between Elmworth and Gold Creek, Alberta and in the British Columbia Deep Basin to the west of Elmworth. Gravity and seismic surveys were run over part of the extensive permit holdings at Nechako in the central interior of British Columbia. The first exploratory well is being drilled in Nechako.

Noranda's share of reserves at year-end (before royalty interest) is as follows:

	Oil and Natural Gas Liquids (millions of barrels)	Marketable Natural Gas (billions of cubic feet)
Proven	3.3	761
Probable	2.9	601
Proven and Probable	6.2	1,362
Established	4.4	972

Proven reserves are volumes that are considered recoverable with a high degree of certainty under anticipated operating and economic conditions. Proven reserves may be assigned to both developed and undeveloped lands.

Probable reserves are volumes that may be recovered from lands in the vicinity of proven reserves but where there is some degree of geological, engineering, operational or economic risk.

Established reserves are those reserves recoverable under current technology and present and anticipated economic conditions, specifically proven by drilling, testing or production, plus that judgement portion of contiguous recoverable probable reserves that are interpreted to exist with reasonable certainty from geological, geophysical or similar subsurface information.

Esso's earning expenditures on seismic and drilling reached the $150.0 million maximum during March, 1980, thereby gaining Esso 12½% of Hunter's Elmworth-Wapiti holdings and 17½% of all other property and reserve interests held by Hunter as of August 1, 1978. Total Esso expenditures on the Hunter program to December 31, 1980 including various option arrangements and joint expenditures since March were $188 million. During the Esso earning period Petromark contributed an additional $16.4 million to maintain its 10 per cent overall interest. Total 1980 expenditures for Canadian Hunter joint venture participants were as follows:

	Land Acquisition and Exploration	Oil and Gas Development	Total
	($million)		
Noranda	30.5	56.9	87.4
Petromark	(0.9)	17.1	16.2
Agnew	4.8	8.3	13.1
Domtar	1.3	3.1	4.4
Total	35.7	85.4	121.1

Noranda's gross investment since 1973 has been $282.9 million. Its share of income from production operations over the period has been $52.7 million, with a resulting net investment at the end of 1980 of $230.2 million.

American Hunter (75%)

A joint venture exploration effort was launched in the United States during the year with the following participation through U.S. subsidiaries:

American Hunter — 75.0%
Keradamex Inc. — 11.25%
Bluesky (Petromark) — 10.0%
Domtar Inc. — 3.75%

Initial activity was assembling land holdings through leasing or farm-in commitments in areas of Wyoming, Nevada, the Appalachian areas of Ohio and West Virginia and in central Texas. Drilling commenced in Wyoming and Texas near the year-end.

Total expenditures to date have been $14.3 million (Noranda share — $10.7 million).

Panarctic Oils (4.1%)

A follow-up to the 1979 Whitefish offshore gas discovery confirmed potentially economic gas reserves in three zones. An additional gas discovery was established in the Char offshore well south of Ellef Ringnes island. Two other wells drilled during 1980 were dry and abandoned.

Panarctic has committed 2 trillion cubic feet (Tcf) of its Drake Point gas reserves on Melville Island to the Arctic Pilot liquified natural gas (LNG) project. The Arctic Pilot participants (Petro Canada, Nova and Dome Petroleum) plan to establish a liquifaction plant at the south end of Melville Island and transport the LNG by ice reinforced tankers to East Coast markets. Provided the participants can obtain all necessary regulatory approvals and meet their financing and construction schedule, gas sales will commence in 1986 at an equivalent 250 MMcf per day.

There was no additional financing subscription during the year and Noranda investment remains at $10.1 million.

Minerals

Noranda Exploration

Exploration and development expenditures in 1980 were $30.0 million. Of this total, 53% was spent in Canada, 36% in the U.S.A. and 11% in other countries.

In Canada, approximately 186 active field projects were carried out for base and precious metals, cobalt, tungsten, potash, and uranium. Of this total, 59 were joint ventures, farm-outs and options in which Noranda maintained management control. Of total exploration expenditures, 40% was spent on diamond drilling, 17% on reconnaissance surveys, 3% on land acquisition and 40% on target selection.

Exploration was continued in central Newfoundland in a joint venture with Terra Nova Explorations Limited. An exploratory drilling program was initiated for potash on Cape Breton Island, Nova Scotia under special licence obtained from the provincial government. In addition, a further special potash licence was optioned from Hallmark Mining Limited. Major exploratory drilling programs were carried out in the Matagami and Noranda areas of Northwestern Quebec. In Ontario, exploration expenditures were increased. Programs for base metals were conducted over selected areas, and exploration for gold continued in the Timmins area. Several potential gold properties were acquired around Red Lake.

In Saskatchewan, major drilling programs were continued on two uranium properties, one with the Saskatchewan Mining Development Corporation and Gulf Minerals Canada Limited, the other with Saskatchewan Mining Development Corporation and Central Electricity Generating Exploration (Canada) Limited. On the former property, operated by Gulf Minerals, encouraging uranium mineralization has been encountered at Eagle Point, Collins Bay. Exploration was continued on an interesting tungsten property in the Yukon, and new programs were initiated for lead-zinc in selected areas. In the North West Territories there was ongoing reconnaissance for base metals, detailed exploration for uranium on joint venture properties, and additional drilling on the Musk silver-zinc prospect. A base metals search was instituted in British Columbia, and the molybdenum program was continued.

In the U.S.A., reconnaissance programs for precious metals have resulted in the acquisition of 15 properties. Exploration for molybdenum continued with interesting results on properties in Montana, Colorado and Nevada. Exploration drilling was continued on seven cobalt properties in Idaho. At Greens Creek, Alaska underground exploration was completed to the pre-engineering stage.

Exploration was continued for base metals, cobalt and gold in Australia, and properties of merit were examined in South America.

In Ireland, exploration continued in permit areas where prospecting indicated merit, and additional drilling was carried out on the Harberton Bridge property.

Mattagami Lake Exploration

This wholly owned, independent, exploration company continued its search for viable mineral deposits, spending $2.7 million on exploration and a further $1.5 million on projects requiring more detailed evaluation. Six of the 29 active projects in Canada encountered encouraging mineralization and will require further diamond drilling tests. The main effort continues to be focused on the Sturgeon Lake Area of Northwestern Ontario where major holdings exist.

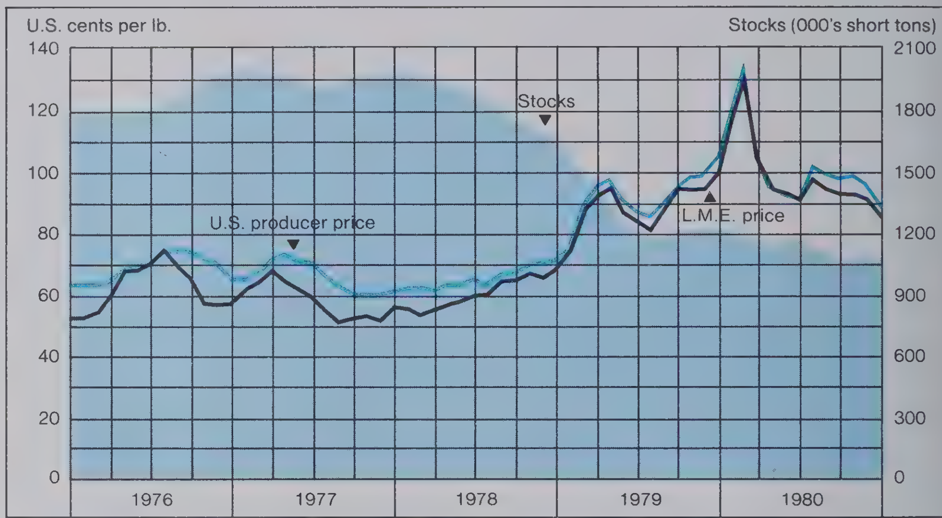
In Spain, Mattagami is still participating in the Iberian Exploration Syndicate's exploration of extensive permit areas and the underground assessment of Minas de Sierra Morena's Roselejo formerly producing silver-lead-zinc property.

Markets

The first quarter of 1980 was marked by an abnormal surge in prices particularly for precious metals, fuelled by the second oil price shock, anxiety over international events and heavy speculation. The markets then subsided, recovered and faltered in successive quarters following the course of the U.S. economy. Although inventories were not excessive at year-end, prices were weak due to the uncertain economic and political outlook.

COPPER

WESTERN WORLD BALANCE – '000 Short Tons	1978	1979	1980
Supply	7,622	7,837	7,783
Consumption	7,955	8,277	7,913
Year-end Stocks	1,666	1,226	1,096



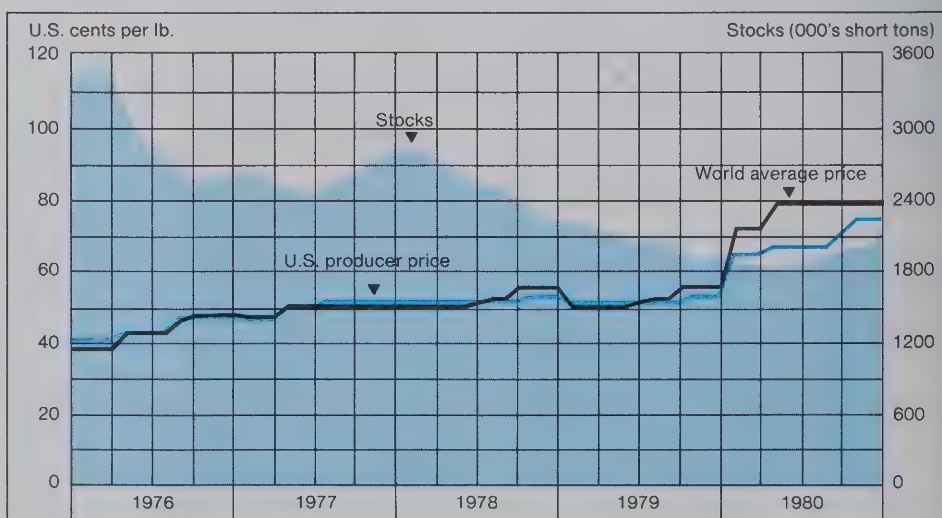
Refined consumption fell by 4.4%, the first drop in five years. This trend developed first in the second quarter as U.S. fabricators cut back on inventories in response to the declining automotive and construction sectors. The recession spread to Europe later in the year when the U.S.A. was tending to recover.

The strike in the U.S. industry was the longest since 1967/68 and caused a loss of mine production totalling some 350,000 tons. As a result, world stocks declined despite the drop in consumption.

London Metal Exchange prices advanced strongly in the speculative surge of the first quarter to peak at U.S. $1.44 per pound but tumbled in April and May to 88¢ in anticipation of lower demand and a forecast surplus for the year. A modest rebound occurred with the U.S. strike but then the downward drift resumed and prices at year-end were 86¢. North American producer prices followed closely throughout the year.

ALUMINUM

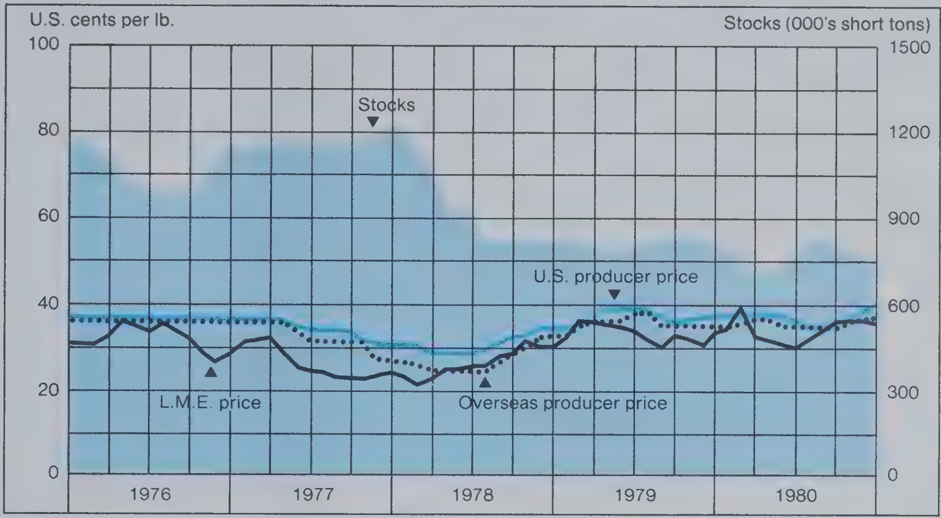
WESTERN WORLD BALANCE – '000 Short Tons	1978	1979	1980
Supply	12,922	13,261	14,165
Consumption	13,425	13,581	13,951
Year-end Stocks	2,260	1,940	2,154



During the first half, the market was firm, inventories declined and the World producer price increased from U.S. 69.2¢ to 79.4¢ per pound. The downturn in U.S. shipments to the domestic housing and automotive industries then tilted the balance to surplus although it was partially offset by exports to Japan and Europe. Towards year-end, U.S. consumption was improving while overseas demand was easing.

ZINC

WESTERN WORLD BALANCE — '000 Short Tons	1978	1979	1980
Supply	4,610	5,155	4,875
Consumption	5,070	5,180	4,905
Year-end Stocks	815	790	760



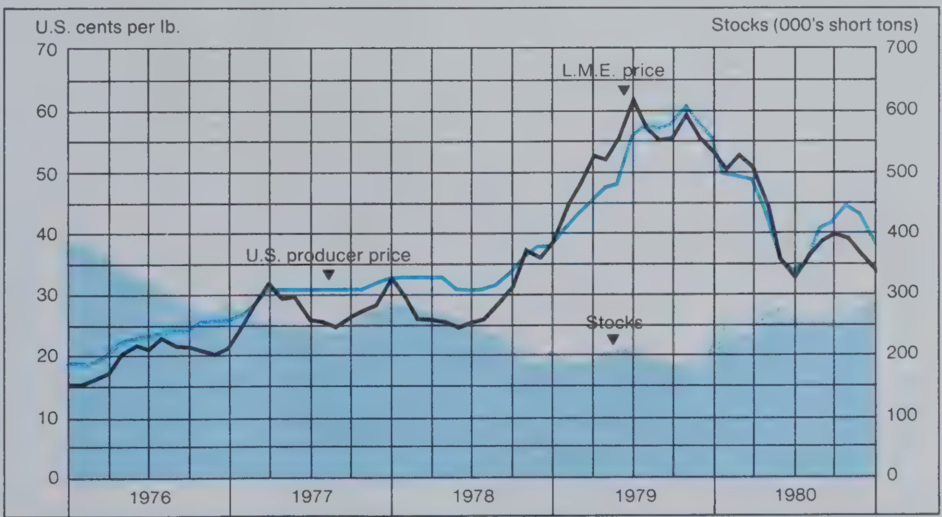
Mine production fell short of earlier forecasts due to production problems and strike losses in Australia and Canada.

Strong metal demand early in the year gave way as recession made its impact felt in the North American and European economies. Consumer inventories were reduced during the second quarter and prices dropped from U.S. $845 to $780 per metric ton overseas and from 39.5¢ to 35.5¢ per pound in the U.S.A. The depressed level of consumption in North America persisted through the summer but improved sharply in the fourth quarter, resulting in three consecutive price increases that brought the price in the U.S.A. up to 41.25¢.

The same recovery was not evident overseas but mine concentrate remained a concern, and the price rose to $825.

LEAD

WESTERN WORLD BALANCE — '000 Short Tons	1978	1979	1980
Supply	4,400	4,570	4,280
Consumption	4,480	4,560	4,205
Year-end Stocks	210	220	295



A marked reduction in U.S. consumption, particularly in the first half, was largely responsible for an overall 7.5% decline in 1980. Total Western world production exceeded consumption and, with exports to Eastern bloc countries falling short of the surplus, industry stocks rose.

Prices fell steadily and by mid-year in the U.S.A. were at a low of U.S. 34¢ and fractionally lower on the London Metal Exchange. These levels recovered to 45¢ and 40¢ respectively by October, but eased again by year-end as North American demand for batteries weakened and consumer inventories were adjusted.

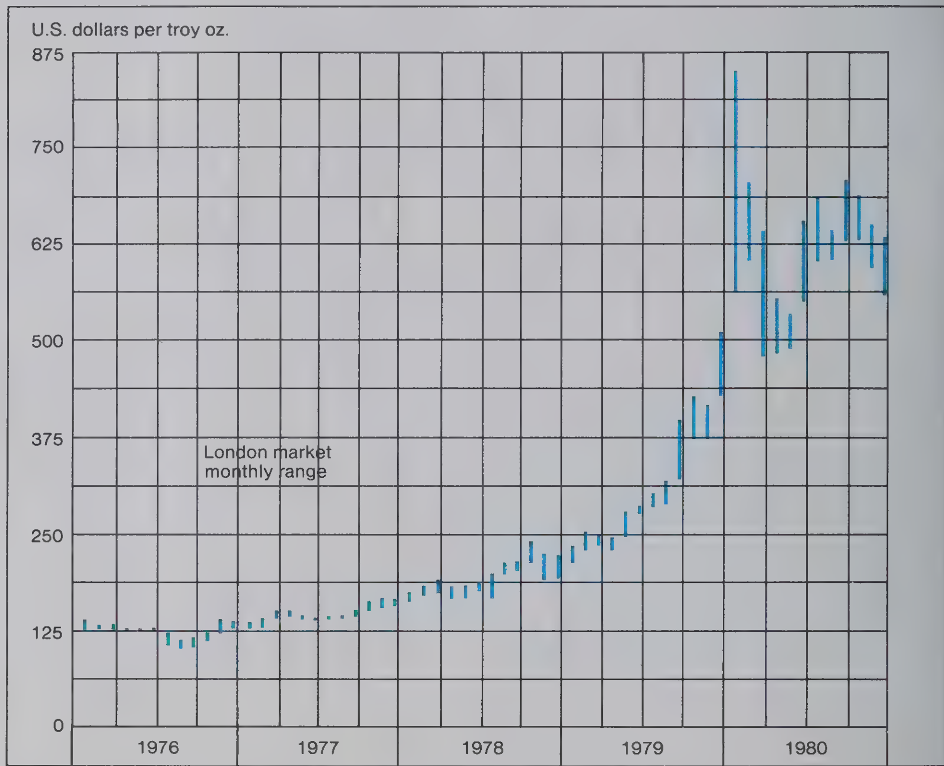
GOLD

WESTERN WORLD BALANCE – '000,000

Troy Ounces	1978	1979	1980
Supply	56.1	56.7	40.3
Industrial Consumption	51.0	46.3	34.6
Surplus	5.1	10.4	5.7

1980 saw the price of gold respond dramatically to world events and speculation. After rising more than U.S. $300 per ounce in 1979 to $559, the price skyrocketed to $843 in January before collapsing to $481 in March. It recovered to $663 by July, consolidated and then rose again in early September to $721 with the Iran/Iraq war. Thereafter the trend was down towards $550 on reports of Russian sales and the rise in U.S. interest rates.

The last auction under the four-year International Monetary Fund program to dispose of 25 million ounces occurred on May 5. The U.S. Treasury held no sales.

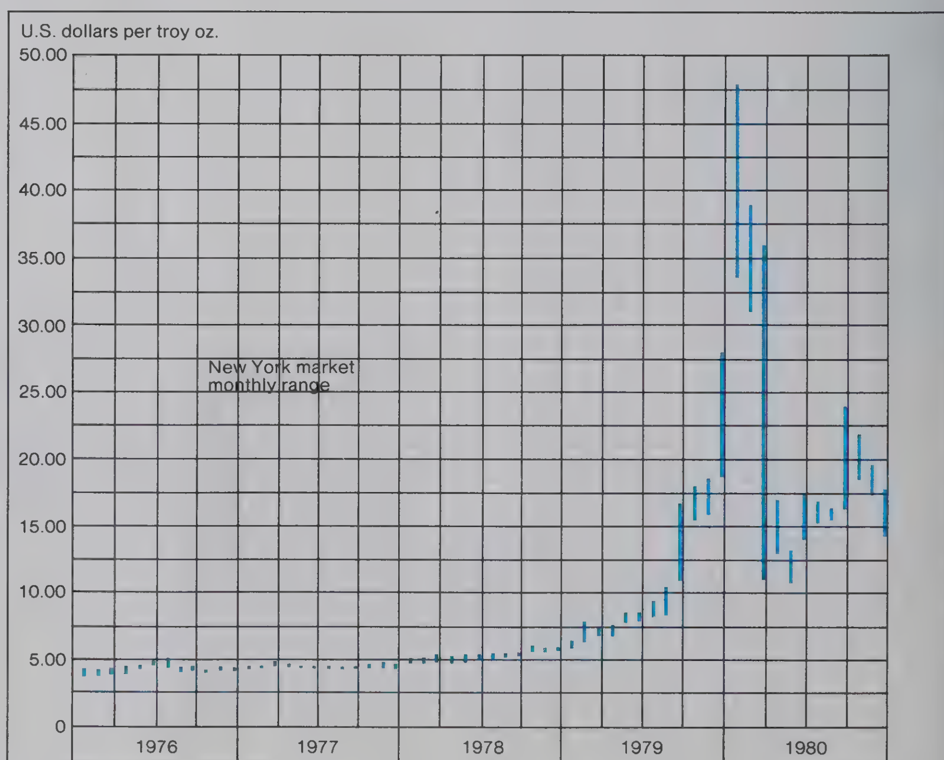


SILVER

WESTERN WORLD BALANCE – '000,000

Troy Ounces	1978	1979	1980
Supply –			
Primary	263	261	269
Secondary	155	132	235
Total	418	393	504
Consumption	434	433	390
Surplus (Deficit)	(16)	(40)	114

After reaching a record U.S. $48 per ounce in January, the market plunged below $11 as speculative pressures reversed. Following the pattern of gold, the price of silver rose to $17 by July and over $24 in September, before declining below $15 in December. The high prices attracted abnormal quantities of secondary material and dampened demand for silverware and jewellery, leading to an overall surplus for the year.

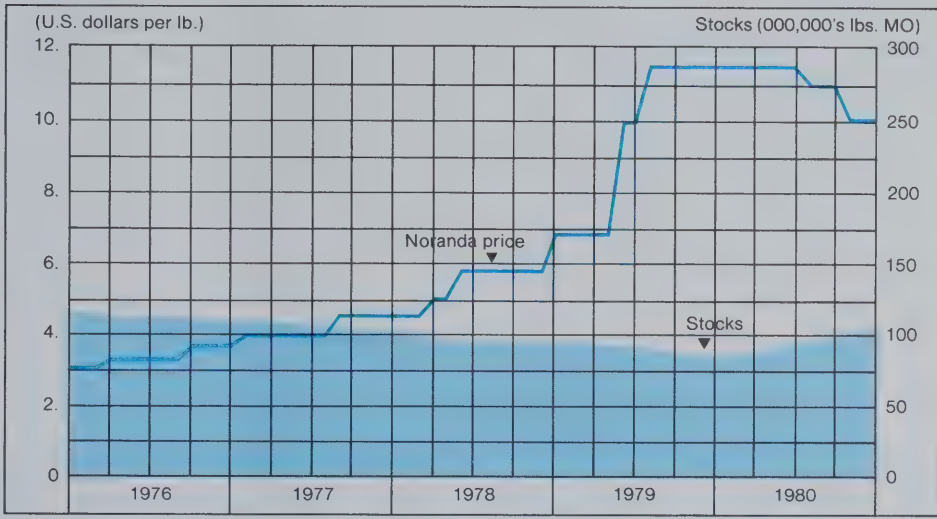


MOLYBDENUM

WESTERN WORLD BALANCE — '000,000 lbs.	1978	1979	1980
Supply	195	201	209
Consumption	198	205	188
Year-end Stocks	98	94	115

There was a noticeable contrast between market conditions in the first and second halves of 1980 as the industry moved from a balanced supply/demand position into surplus. The supply difficulties that occurred during 1979 were avoided while the strong demand previously experienced by many of the molybdenum consuming sectors eased as the year progressed. Molybdenum's major market, the steel industry, was particularly affected by the current recession.

Producer prices were reduced twice from U.S. \$11.57 to \$10.10 per pound for molybdenum in oxide.



PHOSPHATES

WORLD BALANCE — '000 Short Tons P_2O_5 Year Ending June 30	1978	1979	1980
Production	33,781	35,996	37,436
Consumption	31,099	34,376	35,751
Difference	2,682	1,620	1,685

The phosphate fertilizer market in North America was strong through most of the first eight months of the fertilizer year. Subsequently, adverse weather conditions during planting season, high interest rates, and low grain prices resulting from the U.S. grain embargo to the U.S.S.R., combined to hold shipments well below earlier forecasts. However, by May offshore demand strengthened and world consumption by the end of the fertilizer year was some 4% higher than in the previous 12 months.

The U.S. Gulf price increased in March to U.S. \$250 per metric ton, but dropped back to \$205 by June as demand weakened.

POTASH

WESTERN WORLD BALANCE — '000 Short Tons K_2O Year Ending June 30	1978	1979	1980
Production	28,101	28,660	27,958
Consumption	26,664	27,920	28,566
Difference	1,437	740	(608)

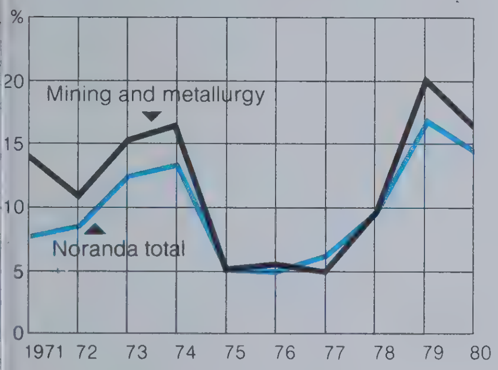
Potash production in North America increased in the fertilizer year by 10.4% to 10.3 million tons of K_2O. However, production in the U.S.S.R. was reported to be down 20% at 7.3 million tons. Overall production consequently decreased but any shortage was confined to the Eastern bloc countries. Published prices for premium grades increased by 20%, or U.S. 20¢ per K_2O unit, to \$1.18 and \$1.20.

New production in New Brunswick and Manitoba, added to Saskatchewan's expanding output, will make Canada the world's largest source of potash by the late 1980's.

Little River Joint Venture, Heath Steele Mines, near Newcastle, N.B.

Mining and Metallurgy

Return on net assets



Copper Group

$ Millions	1980	1979
Sales	607.9	519.7
Operating Profit	121.4	178.2
Net Assets Employed	361.5	463.5

Zinc Group

$ Millions	1980	1979
100% BASIS		
Sales	235.5	252.6
Net Assets Employed	246.4	250.8
NORANDA'S SHARE		
Sales	204.3	215.3
Operating Profit	31.4	48.2
Net Assets Employed	227.8	238.1

Other Mining and Metallurgy

$ Millions	1980	1979
100% BASIS		
Sales	312.2	192.5
Net Assets Employed	401.8	311.9
NORANDA'S SHARE		
Sales	281.7	181.0
Operating Profit	77.8	25.8
Net Assets Employed	382.9	303.5

Major Subsidiaries and Associates

$ Millions	1980	1979
100% BASIS		
Sales	915.6	906.5
Assets Employed	1,008.7	1,174.9
NORANDA'S SHARE		
Sales	529.2	555.3
Operating Profit	61.1	72.7
Net Assets Employed	360.8	352.2

The profitability of mining and metallurgical operations of Noranda was reduced by the sluggish economic conditions experienced during most of the year. The after-tax return on net assets was 16.7% in 1980 compared to 20.4% in 1979. With the exception of zinc, metal prices peaked in the first quarter of 1980 and then trended down for the balance of the year. This price pattern, strikes at Brunswick and Mattabi, and a one-month plant shutdown at Brenda due to equipment failure, reduced revenues and operating profits from the level achieved during the first quarter of the year. The favourable exchange rate for the Canadian dollar and the sale of the Koongarra uranium deposit in Australia made positive contributions to mining and metallurgical earnings.

Copper production of Noranda Division mines increased 36% over the previous year because of a full operating year at Mines Gaspé and the inclusion of the Granisle and Heath Steele mines which were purchased late in 1979. Geco had another excellent year, although copper production was lower due to milling ore that was below the average grade of the ore reserves.

Anode copper production from the smelters at the Horne and Mines Gaspé and refined copper production from CCR Division were higher than the previous year. The Canadian Electrolytic Zinc refinery had an excellent operating year and achieved a production record of 229,000 tons of zinc metal. With a strong marketing program by Noranda Sales, inventories of zinc metal were at minimum working levels at year-end. Output from the Brunswick lead refinery was substantially reduced because of work stoppages at both the smelter and the mine.

The smelters and refineries are continually being modernized and modified to improve both operations and their environmental impact. Over $100 million will be spent in 1981 and 1982 to improve the existing metallurgical plants, including $35 million at the Horne copper smelter for a 500 tons per day oxygen plant and $45 million for a roaster and acid plant addition at

NORANDA — INTERESTS

Summary of Mine Production

	Ore Treated (000 Tons)	Copper (Tons)	Zinc (Tons)	Lead (Tons)	Silver (000 oz.)	Gold (Ounces)	Molybdenum (000 Lbs.)	Muriate of Potash (000 Tons)
Noranda Divisions	28,757	114,989	108,710	910	2,368	74,700	3,449	1,434
Brenda	10,061	10,365					5,048	
Brunswick	2,037	2,548	143,115	50,025	3,464			
Heath Steele	1,380	6,300	46,000	8,800	999			
Kerr Addison*	834		27,400	15,400		55,900		
Mattabi	843	1,660	55,050	4,730	1,868			
Pamour	1,826	1,904			47	113,809		
Placer**	38,071	91,558					16,080	
Tara	2,353		211,313	33,069				

*Includes Mogul of Ireland

**Endako, Gibraltar, Craigmont, Marcopper

Summary of Smelting and Refining Production

	Copper (Tons)	Zinc (Tons)	Lead (Tons)	Silver (000 oz.)	Gold (Ounces)	Cadmium (Lbs.)
Noranda Divisions						
Horne	221,000					
Mines Gaspé	69,000					
C.C.R.	410,000			22,055	475,000	
Brunswick			49,500	3,043		
Canadian Electrolytic Zinc		229,000				881,300

Canadian Electrolytic Zinc. The zinc plant project will allow roasting all the concentrate consumed and may increase throughput slightly.

Mine production of zinc in concentrate was 564,000 tons, down slightly from the previous year. This reduction was caused by the four-month strike at Brunswick Mining and Smelting's mine at Bathurst, N.B. Completion of the expansion of Brunswick's production to 11,000 tons per day will also be delayed by the strike until April 1981. Significant production improvements occurred at the Tara mine in Ireland but earnings were not significant because of low metal prices and the high debt load. Heath Steele Mines, which has a 75% interest in the Little River Joint Venture in New Brunswick, operated profitably despite production problems caused by blockages from sloughing walls in the ore passes. These have been remedied and other improvements are being made which should improve productivity by the latter half of 1981.

Work continued on the various projects and properties listed in last year's report. While progress has not been as great as was planned due to capital escalations, technical difficulties and delays, most of these operations will come on stream.

The Koongarra uranium deposit in Australia was sold and U.S. $45 million was received. A further payment of U.S. $75 million is contingent upon the decision to place the property in production. The feasibility study of the Andacollo project in Chile was completed but, unfortunately, satisfactory financing could not be obtained. Noranda's interest in the project was turned over to the Chilean partner.

The wholly-owned Lyon Lake base metal mine in northwestern Ontario was brought into production in October and should reach the designed production rate of 1,000 tons per day in March 1981. Production from the "F" Group mine will begin in the third quarter of 1981. Development of both properties was delayed by a six-week strike in 1980 but both will be completed on budget. Ore from both mines will be treated at the nearby Mattabi concentrator.

Construction began at the Goldstream base metal mine north of Revelstoke, B.C., where production at a rate of 1,500 tons per day is expected late in 1982. A concerted effort is being made to rectify throughput, grade and recovery problems experienced at the Camlaren gold mine in the North West Territories.

Startup of the Lakeshore copper mine in Arizona was delayed to the first quarter of 1981 by a shortage of sulphuric acid that resulted from the U.S. copper producers' strike. The Ontario project at Park City, Utah began limited production of about 230 tons per day of silver-lead ore. This project is behind schedule and over budget due to water problems, ground conditions and difficulty in attracting experienced miners. Construction at the Grey Eagle gold deposit in northern California will begin in the summer of 1981. The estimated cost of this project has increased to U.S. $26 million, partly due to regulations that require more preproduction stripping for construction of a tailings dam. Development at the Blackbird cobalt project continued, but the estimated capital cost has substantially increased and a production decision has been delayed. The company is investigating various alternatives of financing onward capital requirements.

The short term outlook for mining and metallurgical operations is clouded by the uncertain economic environment. In the longer term, prices should rise from current levels which are depressed in real terms and far below the prices required to justify new productive capacity.

As the growth in the Canadian labour force slows, in the 1980's mining operations in remote locations will experience increasing difficulty in attracting and retaining the skilled workers required by modern mining methods. Noranda has ongoing programs to teach the necessary skills and enhance the quality and safety of the work environment in order to keep the people who are so necessary to its long term success.

Operations

LEGEND	
Cu	copper
Zn	zinc
Pb	lead
Ag	silver
Au	gold
Mo	molybdenum
Co	cobalt
Hg	mercury
K_2O	potassium oxide
U_3O_8	uranium oxide
o.p.t.	ounces per ton

Copper Group

Horne Division

SMELTER PRODUCTION — (Tons 000)

	Materials Smelted (Excludes Flux)		Cu Content of Anodes
	Noranda	Custom	Produced
1980	183	741	221
1979	158	799	232
1978	161	735	226
1977	182	798	243
1976	176	799	229

Receipts of concentrates, scrap and secondaries were 33,000 tons lower than in the previous year. Beginning in April, a gold-bearing siliceous ore trucked from a northwestern Quebec mine became the principal source of smelter flux.

The Horne concentrator milled 275,000 tons of Chadbourne gold ore. Completion of a semi-autogenous grinding circuit for slag milling was delayed 16 weeks by a strike at a supplier's shop. A new custom milling circuit for zinc-bearing ore is under construction.

A new converter hood of unique design, developed as part of a program to improve working conditions in the smelter, very effectively reduces spill gas emissions. Four of these units will be installed at a cost of $4.0 million. The capital program to reduce particulate stack emissions and to reclaim abandoned tailings sites continued. Covering of the Waite Amulet tailings dam with vegetation was completed and other areas are being surfaced with inert tailings in preparation for vegetation.

A $35 million smelter modernization project is underway. Through increased use of oxygen, smelting capacity will be diverted from one of two reverberatory furnaces to the energy-efficient Noranda Process reactor. The equipment is expected to be in operation during the first quarter of 1983. Significant reductions in atmospheric dust pollutants will be achieved, together with improvements in productivity and metallurgical performance.

A study was made of the health of all plant hourly-rated employees as a joint effort between the employees' union, the regional branch of the Province's community health department and a team from the Mount Sinai Hospital in New York. The results of that study have not yet been revealed.

Geco Division

ORE TREATED

Tons (000)	GRADE % Cu	% Zn	Ag o.p.t.
1,497	1.47	3.32	1.77

CONCENTRATE PRODUCED

Total Tons	METAL CONTENT Cu Tons	Zn Tons	Pb Tons	Ag oz.
153,000	20,000	41,900	780	1,752,900

MINERAL INVENTORY

Tons (000)	GRADE % Cu	% Zn	Ag o.p.t.
20,871	1.85	3.72	1.46

The necessity of extracting the ore in a sequence that will enable continuing stability for future mining operations resulted in lower grade copper ore being mined during the year while higher grade pillars were being prepared. The tonnage treated in the mill was accordingly lower than in the preceding year.

Modifications made to the zinc circuit in the mill increased metal recovery and concentrate grade.

The modular training system continues to be mandatory for all new employees at the Geco mine. It has resulted in lower employee turnover and has improved mine safety. The frequency of injuries was lower than in any other year but one of the 23 years of production.

Division Mines Gaspé

ORE TREATED	Tons (000)	GRADE % Cu
Needle Mountain	1,489	1.06
Copper Mountain	9,783	0.45

SMELTING Tons (000)

	CONCENTRATES		PRODUCTION	
	Gaspé	Custom	Cu	Acid
1980	207	86	69	149
1979	110	55	38	71
1978	178	65	56	134
1977	235	93	76	169
1976	232	92	74	193

MINERAL INVENTORY	Tons (000)	GRADE % Cu
Needle Mountain		
Proven Ore	6,223	1.23
Probable Ore	4,819	1.27
Copper Mountain		
Sulphide Ore		
Proven	91,991	0.40
Probable	66,468	0.33
Oxide Ore		
Proven	25,180	0.44
Probable	4,751	0.40

Volume of ore treated was limited as a result of mechanical problems at No. 2 Copper Mountain crushing plant and reduced production from Needle Mountain underground mine due to inadequate ventilation. Molybdenum concentrate production contained 1,776,000 pounds of molybdenum metal.

Mineral inventory was augmented by successful drilling of Needle Mountain 'C' northwest zone. Exploration drilling from surface intersected a promising mineralized horizon at depth under the town of Murdochville. A comprehensive underground exploration program is underway to confirm and expand the information obtained from the surface.

Metallurgical operation of the smelter was satisfactory but ancillary equipment problems limited throughput. Malfunctioning of the acid plant, related to the long 1978-79 shutdown as well as faulty original design, reduced the production of sulphuric acid.

Rehabilitation of the oxide ore treatment plant, incorporating effluent control, was completed in December. Production was resumed in January 1981.

Babine Division

The Division consists of the Bell Copper and Granisle open pit mines, each with its own concentrator. Progress was made in integrating the administrative functions but further economies through interchange of personnel, equipment and services would require a costly road and bridge system to connect the two properties. The shortage of tradespeople was severe throughout 1980.

Bell Mine

ORE TREATED

Tons (000)	GRADE % Cu	GRADE Au o.p.t
5,525	0.41	0.01

CONCENTRATE PRODUCED

Tons (000)	METAL CONTENT Cu Tons	METAL CONTENT Au oz.
69,345	18,399	25,635

MINERAL INVENTORY

Tons (000)	GRADE % Cu	GRADE Au o.p.t.
53,425	0.51	0.01

The concentrator treated 15,095 tons per day of higher grade ore, and copper concentrate produced was 16% above the 1979 level. A 20% increase in ore reserves this year is the result of a change in the open pit mining method.

The mine/concentrator expansion to a rate of 17,000 tons per day neared completion at year-end. Waste removal was behind schedule due to late deliveries of mining equipment. Late equipment deliveries also delayed the installation of the regrind mill and a sands flotation circuit in the mill. Test results indicate that good metallurgical results can be achieved at the higher production rate.

Granisle Mine

ORE TREATED

Tons (000)	GRADE % Cu
4,339	0.39

CONCENTRATE PRODUCED

Tons (000)	METAL CONTENT Cu Tons	METAL CONTENT Au oz.	METAL CONTENT Ag. oz.
44,161	14,615	14,042	131,036

MINERAL INVENTORY

Tons (000)	GRADE % Cu.	GRADE % Mo
34,732	0.41	0.004

Shortfalls of waste stripping in previous years resulted in a shortage of ore from the pit and necessitated recourse to lower grade stockpile material for mill feed. Mechanical breakdowns in the crushing and screening plants reduced mill throughput. Approval was given to refurbish the screening plant and completion of this $5 million project is expected in August, 1981. A new pit design reduced the mineral inventory by some 4.7 million tons, however, the waste stripping was reduced by 30 million tons improving the economic viability. The molybdenum recovery plant was completed in 1980 but is not on-stream because current ore extraction is not in the area of molybdenum mineralization.

CCR Division

REFINED METAL PRODUCTION

	Copper (tons 000)	Silver (oz. 000)	Gold (oz. 000)
1980	410	22,055	475
1979	363	20,648	410
1978	388	22,600	455
1977	383	21,986	372
1976	387	22,501	336

The high price of gold and silver in the first half of 1980 substantially increased deliveries of these metals to the refinery. As a consequence, refined gold production was at its highest level since 1965 and refined silver production was sustained at near record levels despite the extended work stoppage at

Brunswick Mining and Smelting. Copper receipts were augmented by 11,400 tons of unrefined copper from other than regular sources to assure a uniform level of operations throughout the year.

The installation of the semi-continuous casting facilities to extend the range of copper alloys and shapes cast at the refinery is nearing completion and should be in operation by mid-year. Total capital expenditures for this project will be $6.5 million.

European customers, who buy a large portion of Canadian refined copper, are in the process of setting much more rigorous purity standards for cathode copper. To meet these consumer requirements, major equipment modifications are underway which will require capital expenditures of about $6 million. Achieving a high level of cathode purity is difficult relative to other refineries as the anodes processed at CCR contain more impurities detrimental to copper quality.

Zinc Group

Matagami Division

ORE TREATED

Tons (000)	% Zn (GRADE)	% Cu	Ag o.p.t.	Au o.p.t.
1,464	4.81	0.77	0.624	0.015

CONCENTRATE PRODUCED

Total Tons	Zn Tons (METAL CONTENT)	Cu Tons	Ag oz.	Au oz.
160,930	62,750	9,250	281,000	7,125

MINERAL INVENTORY

	Tons (000)	% Zn (GRADE)	% Cu	Ag o.p.t.	Au o.p.t.
Mattagami Lake	6.025	6.80	0.58	0.65	0.011
Orchan	117	5.47	0.75	0.69	0.015
Norita	3.143	3.45	2.23	0.77	0.020
Phelps-Dodge	1.660	4.86	1.14	0.48	—

Ore shortages occurred in mining at Mattagami Lake, Norita and Orchan and were offset to some extent by milling all the remaining ore from Radiore No. 2. At Norita, development encountered difficult ground conditions in the wider east section of 'A' Zone, necessitating a change in the mining method to use waste rock fill. Shaft deepening was nearly complete at year-end. Extensive exploration programs were carried out at all operations and deep diamond drilling resulted in two mineral intersections at Radiore No. 2. The Mattagami Lake concentrator and surface plant was further integrated to become the centralized control centre for all operations.

Mattabi Mines (60%)

ORE TREATED

Tons (000)	% Zn (GRADE)	% Cu	% Pb	Ag o.p.t.
843	7.44	0.40	0.90	3.14

CONCENTRATE PRODUCED

Total Tons	Zn Tons (METAL CONTENT)	Cu Tons	Pb Tons	Ag oz.
132,900	55,050	1,660	4,730	1,867,700

MINERAL INVENTORY

Tons (000)	% Zn (GRADE)	% Cu	% Pb	Ag o.p.t.
5,358	7.31	0.51	0.72	2.44

Additional ore uncovered by the underground development work necessitated increased ore definition drilling that will delay the start of stope production to mid-1981. The pit operation has been extended to offset the delay. A deeper ore zone will be brought into production in 1984 at an estimated cost of $26.6 million. Development includes a 1,900 foot vertical shaft. Minor circuit modifications were made in the mill process to increase metal recoveries and concentrate grades. The tonnage of ore treated and concentrate produced was below 1979 levels due to a six-week labour strike in the summer. Higher metal prices, particularly for silver, improved revenues.

Additional employee accommodation will be provided in Ignace over two years at a cost of $4.0 million.

Heath Steele Mines

Little River Joint Venture
(75% owned by Heath Steele)

ORE TREATED

Tons (000)	% Cu (GRADE)	% Pb	% Zn	Ag o.p.t.
1,380	0.84	1.45	4.34	1.61

CONCENTRATE PRODUCED

Total Tons	Cu Tons (METAL CONTENT)	Pb Tons	Zn Tons	Ag oz.
174,600	6,300	8,800	46,000	998,900

MINERAL INVENTORY

Zone		Tons (000)	% Cu (GRADE)	% Pb	% Zn	Ag o.p.t.
B	Proven	21.900	1.27	1.52	4.11	1.76
	Probable	3,400	0.92	1.65	4.77	1.80
A-C-D	Proven	5,300	1.00	1.31	5.34	1.65
E	Proven	1,500	1.51	2.01	4.39	2.33
		32,100	1.20	1.52	4.39	1.78

Exploration resulted in an increase of 3% in mineral inventory over the previous year.

The mill throughput was 3,772 tons per calendar day. Grinding mill overhaul curtailed production for 10 milling days and ore shortages resulted from ore pass blockages in the mine until a new ore pass was put into service in November. Metallurgical work done during the year should result in improved recoveries and concentrate grades in 1981.

Lyon Lake Division

ORE TREATED

Tons (000)	% Zn (GRADE)	% Cu	% Pb	Ag o.p.t.
92	5.48	0.86	0.61	2.87

CONCENTRATE PRODUCED

Total Tons	Zn Tons (METAL CONTENT)	Cu Tons	Pb Tons	Ag oz.
12,100	4,060	520	130	185,500

MINERAL INVENTORY

Tons (000)	% Zn (GRADE)	% Cu	% Pb	Ag o.p.t.
3,169	7.48	1.44	0.73	3.86

Ore production started in October 1980 and is expected to reach 1,100 tons per day in March 1981. Further development work and diamond drilling are required to follow ore extensions. Planned development was not attained because of a six-week labour dispute and a shortage of experienced miners. Metallurgical difficulties in the copper-lead separation circuit resulted in low recoveries.

Canadian Electrolytic Zinc

(90.2% Direct; 4.3% Indirect)

PRODUCTION	Zinc (tons)	Cadmium (lbs.)
1980	228,900	881,300
1979	219,900	987,500
1978	176,200	866,600
1977	155,550	928,200
1976	125,800	380,000

Metal production at the electrolytic zinc reduction plant in Valleyfield, Quebec was 228,900 tons. This is 95% of estimated plant capacity.

Site preparation and detailed engineering began during the fall for a fourth fluid bed concentrate roaster and a double absorption sulphuric acid plant of advanced design. The new roaster and acid plant with improved concentrate unloading and storage will be operational before the end of 1983. Estimated capital cost is $45 million.

These facilities will replace custom roasting done by Allied Chemical under a 20-year agreement. Slightly increased metal production capacity and zinc recovery, together with significant reductions in the consumption of fossil fuels, will be realized.

Other Mining and Metallurgy

Alberta Sulphate

	Tons
PRODUCTION	
Sodium Sulphate	46,100
MINERAL INVENTORY	
Salts	2,400,000
Recoverable product	1,100,000

Lake dredge operations were sufficient to maintain salt strength, and the established inventory in solution was maintained.

The market for detergent grade sodium sulphate improved at mid-year, and remained relatively stable for salt cake.

Belledune Fertilizer

High interest rates and relatively poor farm income much reduced the demand for phosphate fertilizers in eastern Canada during the spring planting season. In addition, a shortage of lead concentrate at the adjacent Brunswick smelter reduced the supply of sulphuric acid, an essential raw material for the fertilizer plant. Shipments from Belledune were 170,000 tons compared with 198,000 tons in 1979. Export sales, however, remained at a satisfactory level.

Boss Mountain Division

ORE TREATED	Tons (000)	GRADE % Mo
	533	0.17
METAL CONTAINED IN CONCENTRATE PRODUCED		
	1,673,000 Lbs. Mo.	
MINERAL INVENTORY	Tons (000)	GRADE % Mo
	5,438	0.13

Grade of ore and production of molybdenum concentrate were higher than for 1979. Extraction of ore from two small open pits was completed in 1980 and mine production is now entirely from recently developed underground sources. The concentrator capacity is being increased to 2,900 tons of ore per day. The additional 1,200 tons will come from a new open pit commencing in 1982 and 1,700 tons will continue to be mined from underground. The mineral inventory includes the open pit reserves of 2.6 million tons grading 0.11% molybdenum.

Chadbourne

ORE TREATED	GRADE	
Tons (000)	Au o.p.t.	Ag o.p.t.
283	.109	0.1
METALS CONTAINED IN CONCENTRATE PRODUCED	Au oz.	Ag oz.
	27,951	16,758
MINERAL INVENTORY	GRADE	
Tons (000)	Au o.p.t.	Ag o.p.t.
1,100	0.13	0.1

Mining and underground development continued. A diamond drilling program has indicated some downward extension of the ore zone. Improved metal prices slightly increased the reserves tonnage, with a lowered average grade.

Central Canada Potash

	Tons (000)	Grade % K_2O
ORE MINED	3,752	26.3
MURIATE PRODUCED	1,434	60.5
MINERAL INVENTORY	563,200	27.0

Underground advance was 39 lineal miles for a total of 345 miles since mining began in 1969. Ore production improved with increased equipment availability.

Product shipments totalled 1,346,000 tons, and were modestly lower than in 1979 due to wet weather during the spring season in the principal marketing areas of the United States.

Preliminary engineering and environmental impact studies were undertaken as a prelude to the application for permission to expand the plant facilities, and to increase muriate production capacity to 1.9 million tons per year by 1983.

Camlaren (52%)

ORE TREATED

Tons	Au o.p.t (GRADE)	Ag o.p.t. (GRADE)
12,282	0.472	0.14

CONCENTRATE PRODUCED

	Au oz. (METAL CONTENT)	Ag oz. (METAL CONTENT)
	4,738	1,291

MINERAL INVENTORY

Tons (000)	GRADE Au o.p.t.
41	0.609

Operational permits for this small gold mining project northeast of Yellowknife were received early in January and the winter road was established. The installation of the milling plant and development of the mine to the 1,000 foot level were completed by early July.

Throughput was adversely affected by mechanical problems in the hoisting and generating plants, and recovery has been reduced by the presence of active carbon in the ore. Changes in design have been made to overcome these problems and operating results are expected to improve. The known ore zone has been extended to the 1,200 foot horizon.

Major Subsidiaries and Associates

Brenda Mines (50.9%)

EARNINGS — $ Millions

	1980	1979
NORANDA'S SHARE	7.8	12.1

ORE TREATED

Tons (000)	% Cu (GRADE)	% Mo (GRADE)
10,061	0.128	0.033

CONCENTRATE PRODUCED

Tons	Cu Tons (METAL CONTENT)	Mo Tons (METAL CONTENT)
40,230	10,365	2,524

MINERAL INVENTORY

Tons (000)	% Cu (GRADE)	% Mo (GRADE)
142,800	0.146	0.032

The open pit was enlarged to permit mining of the additional low grade mineralized material added to the ore reserves in 1979. Waste stripping totalled 10 million tons.

Concentrator operations were disrupted for approximately one month following major mechanical failure of the primary crusher. Dedicated work on the part of Brenda's repair personnel and the full cooperation of the equipment manufacturer minimized the effect of the breakdown.

Metal recoveries were lower due to the treatment of increased quantities of refractory and stockpiled ore and to the lower head grades.

A natural gas pipeline to the mine was completed during the year and the use of oil for process steam and plant heating has been discontinued.

Oil and Gas Operations

Expenditures totalled $10.5 million, comprising $6.1 million for exploration, $2.3 million for production facilities and $2.1 million for land acquisitions.

Gas sales commenced during the year at Amisk and Granlea at an average 0.9 million cubic feet per day. Production facilities were installed at Greater Cache for export gas sales commencing in 1981.

Brenda participated in the drilling of 64 wells of which 40 were completed as gas producers and 24 abandoned, a success ratio of 62%. Proven plus probable gas reserves at December 31, as established by an independent consultant, were 32.5 billion cubic feet gross (21.5 Bcf net of royalty interests.)

Brunswick Mining and Smelting (64.1%)

EARNINGS — $ millions

	1980	1979
NORANDA'S SHARE	12.9	42.5

MINING

	Tons (000)	GRADE % Pb/Zn
Ore Mined	2,037	12.36

CONCENTRATE PRODUCED

Zn Tons (METAL CONTENT)	Cu Tons	Pb Tons	Ag oz.
143,115	2,548	50,025	3,464,095

MINERAL INVENTORY

	Tons (000)	GRADE % Zn	% Pb	% Cu	Ag o.p.t.
No. 12 Mine:					
Proven	66,229	9.14	3.70	0.29	2.79
Probable	43,458	9.21	3.83	0.36	2.84
No. 6 Mine:					
Proven	419	7.42	2.68	0.24	2.51

SMELTING

Production	Pb Tons	Ag Oz (000)	Sulphuric Acid - Tons
1980	49,500	3,043	157,800
1979	62,600	3,097	196,400
1978	66,900	3,668	185,000
1977	56,400	3,458	152,100
1976	51,400	3,004	119,300

Production and earnings in 1980 were severely affected by the strike at the Mining Division, which commenced on May 30 and was settled on September 25. The new gyratory crusher underground was put into operation in the last quarter. Completion of the expansion is now scheduled for April 1, 1981. Capital expenditures on the expansion at year-end were $56 million.

The lead smelter was shut down for 19 days because of a work stop-

page. The prolonged strike at the mine cut off the regular lead concentrate supply but purchases of 52,000 tons of concentrate allowed the smelter to operate at reduced capacity.

Major construction projects completed during the year were the bismuth crystal plant, the water treatment plant and the slag handling facilities.

Kerr Addison Mines
(41.2% Direct; 2.3% Indirect)

EARNINGS (LOSS) — $ millions	1980	1979
NORANDA'S SHARE	6.6	(17.5)

PRODUCTION	Interest	Ore Milled Tons (000)	Metal Content in Concentrates
Kerr	100%	215	55,900 oz. Au
Mogul	75%	619	27,400 Tons Zn 15,400 Tons Pb

MINERAL INVENTORY	Tons (000)	GRADE	
Kerr	415	0.256 o.p.t. Au	
Mogul	1,447	5.40% Zn	3.41% Pb

Earnings from operations increased to $11.5 million in 1980 compared to $7.6 million in the previous year due to higher gold prices. At the Agnew Lake salvage leach operation, the combination of better than expected production and cost performances, together with uranium deliveries at favourable prices, resulted in the after-tax recovery of $10.9 million of the $59.5 million write-off recorded in 1979. Kerr Addison's share of Mogul of Ireland's 1980 loss amounted to $1.7 million, as zinc and lead price levels were inadequate to cover the effects of inflation on energy and other operating costs. As this is a marginal operation with limited reserves, Kerr Addison wrote off the $4.3 million carrying value of its investment in Mogul.

Pamour Porcupine Mines (48.8%)

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	3.6	4.3

ORES TREATED	Tons (000)	GRADE Au o.p.t.	GRADE % Cu
Total	1,826	0.074	0.12

METAL CONTENT OF BULLION AND CONCENTRATE PRODUCED

Au oz.	Ag oz.	Cu tons
113,809	46,520	1,904

MINERAL INVENTORY	Tons (000)	GRADE Au o.p.t.	GRADE % Cu
Total	4,308	0.082	0.21

The two mills treated ores from ten different mine sites within trucking distances of 113 miles.

Renovation of the grinding circuit in the Schumacher mill was completed, enabling the treatment of a higher tonnage of low grade material in the last half of the year.

The improved price for gold continued to encourage long range exploration and development programs for additional sources of ore, and the mineral inventory was modestly increased. The No. 2 Mine has been rehabilitated for underground production and further exploration. A small surface gold zone at the Gold Hawk Property was mined out as a first step in exploring the property. At the Canadian Arrow Property, an open pit was prepared for production at a rate of 15,000 tons per month.

A careful study of the old mine records at the Timmins Property resulted in a decision to re-equip the main shaft and to prepare for production from underground to begin late 1982.

Craigmont Mines
(19.7% Direct; 14% Indirect)

Year ended October 31

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	1.3	1.8

ORE MILLED	Tons (000)	GRADE
	2,151	0.64% Cu

CONCENTRATE PRODUCED	Tons	Metal Content
	44,300	12,358 Tons Cu

MINERAL INVENTORY	Tons (000)	GRADE
	640	1.72% Cu

A decision has been made to continue mining operations through 1982 by the simultaneous milling of copper concentrate and stockpiled iron concentrate. Unless a prospect arises for continued earnings the shareholders will be asked to approve winding-up of the company following cessation of operations at the beginning of 1983.

Placer Development (33.2%)

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	28.8	25.1

PRODUCTION	Placer's Interest	Ore Milled Tons (000)	Metal Content in Concentrate Tons
Endako Mines Div.	100%	12,239	8,040 Mo
Gibraltar Mines	71.9%	13,937	41,200 Cu
Marcopper Mining	39.9%	9,744	38,000 Cu
McDermitt Mine	51%	354	1,155 Hg

MINERAL INVENTORY	Tons (000)	GRADE
Endako	280,500	0.082% Mo
Equity	29,800	3.70 Ag o.p.t.
Gibraltar	254,600	0.35% Cu-0.008% Mo
Marcopper — Tapian	116,400	0.44% Cu
— San Antonio	220,000	0.57% Cu
McDermitt	1,820	10.12 lbs/ton Hg

Higher molybdenum production improved earnings. Gibraltar's contribution declined because of higher operating costs and the lower quality of ore encountered during early stage II production from its East pit. Marcopper and Craigmont had lower earnings as a result of lower grades of ore milled. An extraordinary gain of $8 million resulted from the sale of the Placer interest in Northern Cattle Company of Australia.

The Equity Silver mine (70% owned) began production of an unleached concentrate in September and made its first shipment in January 1981. Although the mill is operating at design capacity of 5,000 tons per day, the property will not achieve its full economic potential until the second half of 1981 when the leach plant becomes operational.

Construction began at the 34% owned Real de Angeles silver-lead-zinc mine in Mexico, with production expected by mid-1982.

Empresa Fluorspar (98.9%)

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	2.0	1.7

Strong North American demand for acid-grade fluorspar concentrate shipments by 49%-owned Cia Minera Las Cuevas carried over into 1980 but low inventories prevented shipments from exceeding 1979 levels.

Shipments of metallurgical spar were down in North America but market penetration grew in Europe and Brazil. Sharp increases in the Mexican producer fluorspar price coupled with the continuing sluggishness of the steel industry weakened the market over the year.

Fluorex, the 50%-owned hydrofluoric acid plant, operated at reduced levels due to reduced availability of sulphuric acid caused by the U.S. copper strike.

Tara Exploration & Development (46%)

EARNINGS — $ millions (LOSS)	1980	1979
NORANDA'S SHARE	(1.9)	2.7

TARA MINES (75% owned by Tara Expl.)

ORE TREATED	GRADE	
Tons (000)	% Zn	% Pb
2,353	10.11	1.96

CONCENTRATE PRODUCED	METAL CONTENT	
Total Tons	Zn Tons	Pb Tons
448,420	211,313	33,069

Lower ore grades were offset by higher mine production and concentrates produced were 16% above the 1979 level. Further ore definition drilling was done and stope preparation commenced to the west of the shaft pillar. Several pillar recovery methods were under test. Productivity increased in the mine as the crews gained more experience. The emphasis on training resulted in a reduction in injury frequency and turnover. The mill metallurgical results declined due to an increase in refractory ore from one lens. Test work continued to determine means of increasing metal recovery and concentrate grades.

Other Properties and Projects

Northwest Quebec

MINERAL INVENTORY	GRADE			
Tons(000)	% Cu	% Zn	Au o.p.t.	Ag o.p.t.
Les Mines Gallen (50%) 1,810		5.4	0.028	0.75
New Insco 574	2.59			0.60
Magusi 1,520	1.0	4.8	0.04	1.0

Development continued on the open pit property at Les Mines Gallen and at the New Insco property. Production from Gallen is scheduled to start late in 1981 and ore will be treated in the Horne concentrator at the rate of 350,000 tons per year. Production from New Insco is expected to start in 1982 at the rate of 175,000 tons per year. No work was done at Magusi, which lies within trucking distance of the Horne concentrator and will be developed under more favourable economic conditions.

"F" Group Mine, Ontario

MINERAL INVENTORY Tons (000)	GRADE % Zn	% Cu	% Pb	Ag o.p.t.
620	8.22	0.98	0.50	1.83

Stripping of overburden and waste rock amounted to 219,500 tons. This was less than planned due to the equipment being used in the Mattabi Mines pit and the cessation of work during a six-week labour dispute. The primary water retention pond was completed and the pit haulage ramp established. Ore production was rescheduled to July 1981 at 700 tons per day.

Goldstream Division (65%)

MINERAL INVENTORY Tons (000)	% Cu	% Zn	Ag o.p.t.
4,343	3.69	2.67	0.56

The Government of British Columbia gave approval to proceed with development of this orebody located 58 miles north of Revelstoke in January, 1980. This year's activities included detailed engineering, access road construction, initial mine development and the construction of camp and service buildings. Electrical energy will be supplied by B.C. Hydro via a 69,000 volt line from Mica Dam. By agreement Noranda will finance the $60 million project and the prospectors will retain a 35% carried interest. Production at a rate of 1,500 tons per day is expected late in 1982.

New Mexico Potash

A mineral inventory of some 164.9 million drill indicated tons averaging better than 15% K_2O equivalent is held by Noranda Exploration, Inc. in Lea County, New Mexico.

Hopewell Land

The 6,560-acre tract in Hillsborough County, Florida, which contains recoverable premium grade phosphate rock, is being prepared for production. A former processing plant purchased with the property is being modernized, and additional equipment is being acquired. Environmental permit requirements will delay the start of production beyond the anticipated 1981 target date.

Noranda Lakeshore Mines, Arizona, U.S.A.

MINERAL INVENTORY

	Tons (000)	Grade % Cu
Oxide	22,300	1.21
Sulphide — Tactite	8,900	1.35
Porphry	41,000	0.65
Total Sulphide	49,900	0.78

The rehabilitation and development project to bring the oxide mine into production at 6,000 tons per day was completed and partial production of copper cathode achieved in the fourth quarter.

Production was delayed due to a shortage of sulphuric acid resulting from the three and a half month strike in the U.S. copper industry.

Capital expenditures for the project during 1980 totalled U.S. $19 million. Construction of a solvent extraction plant to improve the quality of copper cathode produced will be completed in mid 1981 at a cost of U.S. $7 million.

Blackbird, Idaho, U.S.A. (75%)

MINERAL INVENTORY

		GRADE	
	Tons (000)	% Co	% Cu
Proven	1,100	0.61	1.23
Probable	1,211	0.61	1.20

Mill rehabilitation to 300 tons per day has been completed along with water and sewage treatment facilities. Work on underground rehabilitation continues, and further exploration is taking place. A metallurgical pilot plant is in operation. Environmental permitting should be complete by late 1981. Means of reducing the risk on this project are being investigated since both capital and operating costs have escalated significantly.

Ontario Mine, Utah, U.S.A. (50% Direct; 24% Indirect)

MINERAL INVENTORY

		GRADE		
	Tons (000)	Ag o.p.t.	% Pb	% Zn
Proven	677	5.1	6.2	9.8
Probable	651	3.8	5.5	8.5

Rehabilitation of old workings was continued. Deepening of the #3 Ontario Shaft below the 2,400 foot level was delayed by poor ground conditions, and the preparation of stopes for production was slower than anticipated. The mill treated some 37,760 tons of material averaging 3.19 o.p.t. silver, 3.88% lead, and 5.57% zinc. In addition, some 8,600 tons of purchased ores were treated on a trial basis.

The planned rate of production at 750 tons per day is not likely to be attained until late 1981.

Grey Eagle, California, U.S.A.

MINERAL INVENTORY

		GRADE	
	Tons (000)	Au o.p.t.	Ag o.p.t.
Proven	973	0.18	0.53

Detailed design is underway and construction, subject to receipt of regulatory clearances, will begin in mid-1981. This open pit mine and mill complex is scheduled for operation in mid-1982 at the rate of 500 mill tons per day.

Northland Gold (62.5%)

MINERAL INVENTORY

	GRADE	
	Cubic yards (000)	oz/cu/yd
Indicated	5,600	0.004

This is a placer gold mine located in western Alaska. Dredge rehabilitation and construction of service buildings were undertaken in 1980. Production at the rate of 1 million cubic yards per year is scheduled to begin in the spring of 1981.

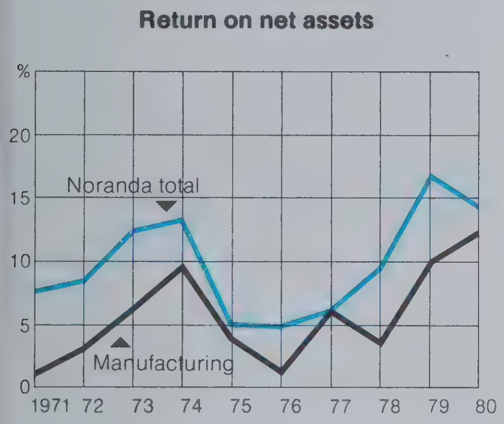
Eluma S.A. Projects

Noranda continues to work with Eluma S.A. in the early development stages of both a copper-gold mining project in the state of Goias and a copper smelting and refining complex. It is now proposed to site the smelter in the city of Sao Luis in the Itaqui port area of northern Brazil, near the anticipated Carajas copper deposits. This project continues to be under discussion with the Brazilian National Development Bank.

The Goias mining prospect is in preliminary engineering, with financing to be developed in 1981. Indicated ore reserves are 156 million metric tons at 0.437% copper and 0.014 o.p.t. gold.

Noranda Sales Corporation and Eluma S.A. formed a joint venture metal marketing and trading company, Elnor Comercio e Representaçoes Ltda.

Manufacturing



Total Financial

$ Millions	1980	1979
Revenues	1,376.0	1,156.0
Operating Profit	84.2	67.5
Net Assets Employed	678.0	664.0

Although 1980 could not be described as a vintage year for the North American economy, Noranda's manufacturing interests weathered the deteriorating environment in their main markets with remarkable success. As in the years since 1977, the relatively low value of the Canadian dollar facilitated sales into the export markets while sheltering Canadian markets from importers. This permitted Noranda's various Canadian manufacturing operations to maintain longer, more profitable production runs under stable operating conditions.

Noranda's beneficial share of the total 1980 activities of wholly-owned, subsidiary and associated companies in manufacturing produced sales of $1,376 million and a profit contribution (before interest and after taxes) of $84 million. This represents a 12.4% return on the net assets employed of $678 million. These assets are worked by some 17,200 employees, of whom 5,000 are in Canada, 3,200 in the United States, and 9,000 in nine other countries.

While these results compare favourably with the 10.2% return in 1979, they are made up of high returns from aluminum and certain wire and cable operations, offset by some continuing problems in the brass and special metals operations.

Out of the 36 units in the manufacturing group, 17 negotiated collective agreement renewals with just one work stoppage, which lasted only nine days. With few and minor exceptions, the new agreements fully reflect the inflation being experienced throughout North America.

	Metal Consumption — Tons	
	1980	1979
Canada Wire	71,900	80,170
Noranda Metal	50,800	54,500
	Prime Product Shipped — Tons	
	1980	1979
Aluminum Group	190,370	163,700
Norcast Division	79,200	74,800
Wire Rope	49,000	46,000

Toronto Group

$ Millions	1980	1979
Sales	617.4	506.0
Operating Profit	31.3	28.3
Net Assets Employed	195.0	199.0

The Canada Wire operations produced results both better than expected and better than they have ever recorded in a period of economic decline. Export sales increased by 25.5% compared with the 1979 level and the rationalizations of previous years in the company's facilities as well as the industry permitted profitable, cost-effective operations.

The principal fixed asset program in Canada relates to Canada Wire's 'mother' plant in Leaside. Overtaken by the efficiencies in new single wire product facilities, this plant is now to be re-established as the core for high-technology and high-voltage cable production. Highly engineered products will continue to be manufactured at Leaside and appropriate divisional staff will remain there while the corporate office is moving to new premises in Metropolitan Toronto.

After lengthy study of the proposition, the aging rod mill in Montreal East is being replaced with a new continuous casting mill. This reflects the change from use of wirebars to jumbo coils of rod by the world wire industry and will

allow Canada Wire to produce substantially in excess of its own requirements.

In other activities, the Company is adding to its Winnipeg telecommunications cable plant 28,500 square feet in which fibre-optic cables will be manufactured. This represents the next and the commercialization stage of Canstar's fibre-optics activities which have heretofore covered all aspects of the business from systems engineering through input-output devices, glass fibres, cables and complete transmission systems. Canada Wire and Cable is conducting final tests on the highest capacity fibre optics system presently installed in North America. This system has 12 fibres, is 60 kilometers in length and was installed in metro Calgary for the Alberta Government telephone company.

International operations remained an important source of income and have made significant contributions to 1980 earnings. The Mexican operations recorded a sales and profit improvement commensurate with the emergence of the petro-economy in that country. Iconel in Venezuela and Tycan in Australia began to recover from production problems incurred in major new plant facilities. Other locations in general experienced a stable, profitable year.

One new international joint venture for Canada Wire is a plastics plant in Ireland. While a small investment, this will utilize the company's skills in plastics and perhaps provide a base for further entry into the European Common Market. The Grandview plastics company has completed its rationalization program with a disposition of certain of its assets. The result was a gain on disposal and improved profitability from the remaining lines of business.

Montreal Group

$ Millions	1980	1979
Sales	293.8	266.0
Operating Profit	2.1	5.1
Net Assets Employed	133.0	138.0

As stated in the 1979 report, the Montreal group has had to address Noranda's most difficult manufacturing problems. It appears that the struggle is being won. Both the U.S. wire rope operation and the Fergus strip mill turned a corner in 1980, although it will be harder for the strip mill to remain profitable, dependent as it is on the changing and depressed auto market.

Plant rationalization in the Brass Mills continues with the concentration of strip production at Fergus, tube and rod at Montreal East and tube at New Westminster, the elimination of special alloy production and much of the antiquated cast house in Montreal. This is a very difficult business in which profit turns as much on the relationship between scrap and virgin copper prices as it does on cost-effective facilities. It is believed that the rationalization program will at least put Noranda Metal at the top of the Canadian industry.

Perhaps the most significant event for this group was the agreement in August 1980 to joint venture the steel alloy tubing operations of the Special Metals plant with Sandvik of Sweden. This arrangement, to be known as Nor-Sand Metals Inc., permits the use of some of the world's most advanced metalworking technology in Canada and also enhances the prospect of export sales. In addition, it is planned to develop a new line of stainless steel tubing for the chemical, pulp and paper, nuclear power and oil and gas industries. The zirconium tube operations of this division are also being sold.

The Wire Rope business in Canada was entirely satisfactory with gains being posted in all its sectors. The Montreal plant is presently installing North America's largest wire rope closing machine, which will eventually supply large-diameter ropes to energy-related industries. The foundry and associated scrap recovery operations of Norcast had improved results even though its major customers in the iron mining area reduced their operations.

Cleveland Group

$ Millions	1980	1979
Sales	464.7	384.0
Operating Profit	50.8	34.1
Net Assets Employed	350.0	327.0
Tons Primary Aluminum Production	147,300	143,200

The most important contribution to manufacturing profits came from the improved results of the Aluminum group. The primary aluminum market, while softening towards year-end, was well-balanced during the year. This not only permitted continuous capacity operations but also recovery of cost increases, principally of labour and power.

After protracted negotiations with the U.S. Environmental Protection Agency and with the cooperation of the Missouri Department of Natural Resources, Noranda Aluminum is now clear to embark on the construction of an 85,000 tons per year expansion of its reduction facilities at New Madrid, Missouri, which will bring total rated production capacity to 225,000 tons per year. The new potline is expected to begin operations in the second half of 1982 after an expected capital cost of $267 million. The supply of both alumina and power for the expanded operation has been arranged at cost-competitive rates.

The Norandex building products business had a most remarkably successful year in the face of depressed conditions in the building industry. The company added to its strength by acquiring the plant and distribution arrangements formerly owned by Revere Aluminum Building Products of Chicago.

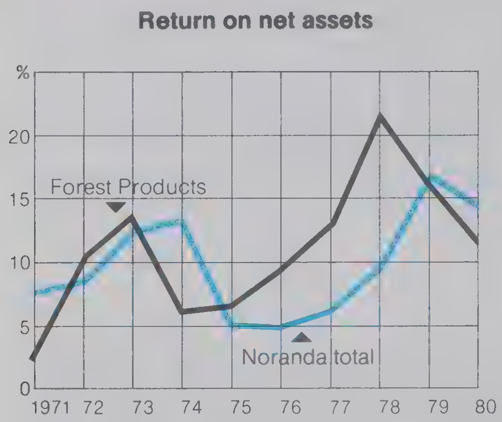
The Norandal sheet and foil operation produced unsatisfactory results, partly due to a combination of a squeeze between rapidly escalating aluminum raw material prices and steady to declining product prices.

Summary Outlook

With minor exceptions, Noranda's manufacturing enterprises are performing well and building a strong asset base with good management. Conditions are right for this group to successfully enlarge its activities.

Packaging aluminum foil, Norandal, Huntingdon, Tenn., U.S.A.

Forest Products



Noranda's share of earnings from forest product operations increased for the fifth consecutive year and their quality reflects a balanced geographical and product spread. As mentioned in the Directors' Report, profits were fortified by the Maclaren acquisition in January.

The geographic spread and volume of forest products produced by Noranda companies and associates are as tabulated. Although the weighting is heavy to wood products in the western companies, this is offset by the paper and newsprint in the eastern companies. Taken together, the mix precluded some of the extreme profit swings common to single or two-product companies.

The resulting $74.2 million profit contribution represented an 11.7% return on the assets employed in the various units. This was translated into a 14.5% return on Noranda's direct investment. Altogether, these compa-

Maclaren Power & Paper, Buckingham, P.Q.

nies operate six pulpmills, three newsprint machines, ten paper machines, two waferboard plants, four plywood plants, sixteen sawmills and three tree nurseries.

The timber bases for these operations are held in a variety of ways from freehold to cutting rights, but they are sufficient for the sustained yield production of some 4 million cunits per annum. From this, some 25 million acres of forest are held of which 4% is freehold. Noranda's interest in this freehold is 558,000 acres which could be said to be worth $164 million or $1.62 per Noranda share.

It has been Noranda's policy to encourage justifiable capital improvements in all these companies whenever suitable opportunities arose for cost improvement or further utilization of available fibre. At the time of writing, these companies have an aggregate three-year program of $1.5 billion in plant modernization and expansion which compares with the previous three-year total of $700 million. Noranda's share of this capital program is $900 million. In the short run, the program of upgrading and expansion will mean a sacrifice of some profit as heavy and costly debt is assumed, but the company is confident that the results will justify the investment and produce attractive rates of return.

Aside from capital expenditures required to upgrade, replace or debottleneck existing equipment, several major projects deserve mention.

Northwood Mills negotiated the acquisition of two building material distributions operations. These are in Calgary, to replace an existing operation, and in Moncton, to establish a Maritime base and to complete the national spread of the company.

Special mention should be made of the Maclaren acquisition which was completed in January 1980. Noranda was exceedingly fortunate in being acceptable to the controlling shareholders of Maclaren who accepted and recommended others also to accept eleven shares of Noranda for each six shares of Maclaren held. The offer was based on a $233 million value of Maclaren which included an investment portfolio then valued at $92 million. The transaction was completed quickly and both parties can view it with increasing satisfaction. The Noranda shares then issued are now worth about $290 million while the Maclaren portfolio had appreciated some $53

Geographic spread of production

100% BASIS	Western	Eastern
Lumber (MM fbm)	1,303	115
Plywood and Waferboard (MM sq. ft. 1/16")	2,380	778
Pulp (M tons)	752	209
Paper products (M Tons)	599	606
NORANDA'S SHARE		
Lumber (MM fbm)	485	81
Plywood and Waferboard (MM sq. ft. 1/16")	842	389
Pulp (M tons)	264	174
Paper products (M Tons)	170	441

Total Financial

	1980	1979	1978	1977	1976
	($ Millions)				
100% BASIS					
Sales	1,720	1,489	1,304	978	835
Earnings	152	162	130	67	47
Assets Employed	1,749	1,056	840	804	619
NORANDA'S SHARE*					
Sales	851	656	589	455	406
Earnings	74	64	62	30	19
Net Assets Employed	827	430	329	318	265

Includes proportionate share of companies not wholly owned.

Total Production

	Lumber	Plywood & Waferboard	Market Pulp	Paper Products
	(MM fbm)	(MM sq ft 1/16")	(M tons)	(M Tons)
100% BASIS				
1980	1,418	3,158	961	1,206
1979	1,482	2,017	837	1,021
1978	1,573	1,772	828	1,005
1977	1,614	1,381	710	777
1976	1,476	1,682	786	663
NORANDA'S SHARE				
1980	567	1,231	438	610
1979	574	659	315	404
1978	660	503	312	398
1977	725	392	268	331
1976	676	866	293	297

Northwood Mills

	SALES		
	Northwood Mills	Northwood Building	
	Lumber MMfbm	Lumber MMfbm	Panelboard MMSM 1/16"
1980	646	232	1,244
1979	669	234	811
1978	749	262	811
1977	775	245	856
1976	711	284	1,039

Maclaren Power & Paper

	PRODUCTION		
	Newsprint (000) Tons	Pulp (000) Tons	Lumber MMfbm
1980	161	114	22

million by the end of 1980. The company's profit was 38% higher than the previous year.

The Maclaren management style matches that of Noranda and its other forest product associates. Each of these acts independently, calling on the overall pool of expertise and financial capacity as necessary.

Maclaren is embarking on the first stage of a multi-year program to improve environmental control, increase newsprint production, and expand the Thurso pulp mill. The first stage of this is a conversion to ultra high-yield sulphite production at Masson, Quebec.

Fraser's next major project, to commence shortly, is the modernization and conversion to magnesium bisulphite production at Atholville. This long-awaited program is expected to cost $185 million, employ 400 during construction and secure the job futures of some 266 persons producing 120,000 tons per year. Some 13% of the required financing will be provided by various Government grant programs while the major financing will be provided by the company's available line of credit.

Northwood Pulp and Timber is doubling the size of its Prince George pulp mill at a total cost, including interest, of $310 million. The result should be not only one of the world's largest single-site pulping facilities but also the most cost-effective mill producing a premium product. Some 140 additional jobs will be created in a plant that will be more flexible and adaptable than before. In Chatham, N.B. the Northwood waferboard mill performed quite well but unprofitably in its first full year of production. The company's second waferboard mill is under construction at Bemidji, Minnesota at a cost of U.S. $36.5 million and is expected to start up in May, 1981.

During the year, Northwood acquired North Central Plywoods, an extremely efficient Prince George plant, whose advantages are further enhanced by the integration of log supply with the larger company in the same cutting licences. Northwood also put a new seedling nursery into production, the first company to do so under recently revised British Columbia forest legislation.

B.C. Forest Products, which is the champion investor, has started its lumber and newsprint project in Alberta. Estimated costs are $300 million. In addition, it acquired Elk River Timber at a cost of $152 million for 150,000 cunits of annual production, continued with the Crofton #3 newsprint machine project ($150 million) and acquired one-third of Western Forest Products ($60 million), which owns substantial timber rights, two old pulpmills and three sawmills. The timber so acquired makes BCFP uniquely self-sufficient in fibre supply even though a big debt was incurred, together with some heavy future plant rehabilitation obligations.

Summary Outlook

Although wood product markets were poor and some pulp markets softened in 1980, newsprint and fine papers were strong. The products these Noranda companies make are mostly at the premium end of their respective lines. This being the case, with competitive plants, the outlook is good.

Fraser (64%)

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	19.3	16.3

	PRODUCTION			
	Lumber MMfbm	Pulp (000) Tons	Paper (000) Tons	Boxboard (000) Tons
1980	93	95	414	31
1979	95	95	402	31
1978	90	93	395	31
1977	68	83	385	31
1976	65	74	376	33

Northwood Pulp and Timber (50%)

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	11.2	15.5

	PRODUCTION			
	Plywood MMsq.ft. 1/16	Lumber MMfbm	Pulp Tons (000)	Waferboard MMsq.ft. 1/16
1980	775	537	237	778
1979		593	244	401
1978		548	241	—
1977		554	205	—
1976		512	231	—

British Columbia Forest Products (28%)

EARNINGS — $ millions	1980	1979
NORANDA'S SHARE	16.9	27.0

	PRODUCTION				Blandin	
	Lumber MMfbm	Pulp (000) Tons	Newsprint (000) Tons	Plywood MMSM 1/16	Paper (000) Tons	Waferboard (000) Tons
1980	766	516	296	1,233	303	40
1979	795	498	282	1,232	308	42
1978	835	494	279	1,279	300	53
1977	812	421	257	1,203	102	20
1976	721	480	252	1,141	—	—

Environmental Control and Research

Environmental Control

Monitoring of environmental quality and emissions are carried out on a regular basis at all plant locations for both the discharges and the various receptors. In addition, biological surveys are made of the aquatic life at a number of these locations.

Water treatment plants have been, or are being, constructed at the Smelting Division of Brunswick Mining and Smelting, the Gallen Mine in the Noranda area, and the Blackbird cobalt property in Idaho. These plants all employ lime neutralization techniques and are designed to treat water from underground, process and, where possible, plant yard run-offs. Recycle and water diversion schemes are being used at other plants to reduce the volume of effluents.

Gaseous emissions were decreased by absorption tower improvements at Canadian Electrolytic Zinc in Valleyfield, and by emission control modifications on the first potline at Noranda Aluminum in Missouri. The installation of electrostatic precipitators, baghouses, and scrubbers at many locations has decreased the emission of particulates. At the Norcast foundry in Mont Joli, Quebec, a major baghouse installation on the cupola furnace emission will be completed early in 1981.

Process changes have continued to be an important environmental control measure practised at various locations. At the Boss Mountain Division, a mill reagent was changed, improving the quality of the effluent. A new slag disposal system was designed at Brunswick Mining and Smelting to prevent the leaching of metals. If necessary, any run-offs can be directed to the treatment plant. Research on thiosalt destruction at Brunswick advanced to the pilot plant stage. Research continued into acid precipitation, control of oxidation of tailings, and improving dust recoveries from electrostatic precipitators.

Forest Product operations continued ongoing programs for improving the quality of emissions. In addition major expenditures are involved in the Northwood Pulp expansion, the modernization program at Maclarens and the conversion of Fraser's pulp mill in Atholville.

Water treatment plant, Brunswick Mining, Bathurst, N.B.

Ventilation and noise abatement projects continue to improve the working environment. Noise is monitored by surveys, employees' hearing is tested on a regular basis and, wherever possible, abatement techniques are applied in noisy areas.

Capital expenditures for emission and effluent control, including the in-plant occupational health measures, have exceeded \$173 million since 1971.

Noranda Research Centre

The hydrometallurgical process to recover metallic cobalt from Blackbird, Idaho arsenical concentrate was successfully tested on a mini-pilot scale. It is planned to further develop this process in a pilot plant during 1981. Design work is also proceeding on a pilot plant to test a process for the extraction of silver from Brunswick zinc concentrate.

Three years ago, a comprehensive market development program to promote a group of new zinc foundry alloys was started in cooperation with Noranda Sales Corporation. This project has been successful and alloyers in the U.S., the U.K. and West Germany are now committed to developing new applications for these alloys.

The program to develop improved electrolytic cells to produce hydrogen has now reached the stage of an agreement with Hydro-Québec to install three 100,000 ampere cells of commercial size at their Varennes laboratory, to be followed at a later date by three additional cells of more advanced design. Hydro-Québec has indicated considerable interest in the joint development of this new technology.

At year-end, 153 people, of whom 68 are professionals, were employed at the Centre. Total spending was \$7 million.

Effects of Inflation

The financial strength of companies and individuals is greatly eroded by inflation, but the measurement of that erosion is difficult. A committee appointed by the Ontario government in 1977 recommended an approach that attempts to show the effect of inflation on funds generated by a business.

Application of this method to Noranda's 1980 results, using a Statistics Canada index, (i.e. the Business Component of the Gross Capital Formation part of the Implicit Price Index) produces the statement shown on the right. It should be emphasized that this is a general business index which may not reflect the full impact of inflation on the costs of the company. However, the intent of the statement is to provide only a perspective.

This statement demonstrates that, of the $617 million generated in 1980, $301 million ($130 million plus $171 million) should have been spent to maintain the business, given the level of inflation Canada has been experiencing, of which $54 million could be borrowed. This would have left $370 million to distribute to shareholders or to spend on growth, assuming no change in the existing debt-equity ratio.

What in fact happened in 1980 was that we spent some $146 million (net) on plant and working capital to maintain the business, $530 million in expansion of facilities and $150 million to pay dividends to shareholders. $209 million of outside capital had to be raised to help pay for these expenditures.

Funds generated from operations (total from statement of changes in financial position)		$617,000,000
from this, deduct the funds required to finance original cost of productive assets (historical cost depreciation)		130,000,000
leaving this amount available, on a historical accounting basis, for distribution to shareholders or for expansion		487,000,000
but to take account of the increased cost of maintaining operating capacity in our inflationary environment, the following funds should also be deducted:		
to replace inventories at higher prices	$58,000,000	
for plant, machinery and equipment at higher prices	113,000,000	
	171,000,000	
partly offsetting these requirements, additional funds may be available from borrowing if present debt-equity ratio is maintained	54,000,000	117,000,000
which leaves the funds available from the year's operations for distribution to shareholders or investment in expansion of facilities		$370,000,000

Thus, by this measure, Noranda did not invest the additional requirement of $301 million needed to maintain the business and must be prepared to make up the extra $155 million in future years. The debt to equity ratio was improved by the issue of shares and as a result of actual borrowings being less than the $54 million shown in the above statements.

It should be noted that the $117 million figure shown in the statement could be interpreted as indicating the approximate amount by which Noranda's 1980 earnings were overstated due to the ravages of inflation. Earnings are taxed without adequate recognition being given to this overstatement.

Accounting Policies

BASIS OF PRESENTATION OF FINANCIAL STATEMENTS

The accompanying financial statements are prepared in accordance with accounting principles generally accepted in Canada and include, on a consolidated basis, the accounts of Noranda Mines Limited (the Company) and all of its subsidiaries. The Company together with its subsidiaries is referred to as Noranda. Noranda's interests in associated companies in which it has significant influence but not majority share ownership are accounted for on the basis of cost plus Noranda's equity in undistributed earnings of such companies since the dates of investment. The difference between the cost of the shares of associated companies and the underlying net book value of the assets is amortized over the life of the assets to which the difference is attributed. Other long-term investments are carried at cost less any amounts written off.

Certain subsidiary and associated companies own shares in the Company. The Company's pro rata interest in the carrying value of such shares has been deducted from shareholders' equity. Similarly, the Company's earnings per share have been calculated on the number of shares outstanding after reduction for such intercompany holdings.

TRANSLATION OF FOREIGN CURRENCIES

Foreign currency assets and liabilities of the Company and its subsidiaries and associated companies are translated into Canadian dollars as follows: working capital at exchange rates prevailing at the end of the period; fixed and other long-term assets, long-term debt, and depreciation provisions on the basis of historic rates of exchange; revenues and expenses (other than depreciation) at average rates during the period. Exchange translation gains and losses from these procedures are included in consolidated earnings.

INVENTORIES

Mine products are valued at estimated realizable value and other inventories at the lower of cost and market.

FUTURES CONTRACTS

From time to time, the Company owns futures contracts for the purchase or sale of metals and currencies not related to production. These contracts are not reflected in the Company's accounts, beyond the amount of deposit required, until maturity date although provision is made for any estimated unrealized losses.

DEPRECIATION AND DEVELOPMENT CHARGES

Depreciation of property, buildings and equipment and amortization of development expenditures are based on the estimated service lives of the assets calculated using the method appropriate in the circumstances, for the most part straight-line for fixed assets and unit of production for development. Assets held under capital leases are generally amortized over the terms of the respective leases and the amortization amounts are included in depreciation.

EXPLORATION

Mineral and petroleum exploration expenditures are charged against current earnings, unless they relate to properties from which a productive result is reasonably certain or on which work is in process. Gains on sale or recoveries of costs previously written off are normally credited against exploration expense.

INCOME TAXES

Under the income tax laws, some costs and revenues are included in taxable income in years which are earlier or later than those in which they are included in income reported in the financial statements. As a result of these timing differences, income taxes currently payable normally differ from the provisions for taxes charged to earnings. The differences are shown in the consolidated balance sheet as "Taxes provided not currently payable".

Potential tax savings arising from losses incurred and investment tax credits are not reflected in earnings in the year they arise unless there is virtual certainty that they will be realized.

INTEREST

Generally interest expense is accrued and charged against income except interest that can be identified with a major capital expenditure program. Such interest is capitalized during the construction period.

START-UP COSTS

Start-up costs on major projects are deferred until the facility achieves commercial production volumes. These deferred costs are written off over a reasonable period on either a straight-line or a unit of production basis.

CAPITAL LEASES

The Company and its subsidiaries lease certain property, buildings and equipment under long-term capital leases which are recorded in the financial statements as fixed assets and long-term debt.

PENSION COSTS

The Company and its subsidiaries have various contributory pension plans which cover substantially all of the employees. Current service pension costs are charged to earnings and funded as they accrue. Past service costs are charged to earnings and funded at rates which, based on annual independent actuarial estimates, will fully provide for the obligations over periods not longer than those permitted by various regulatory bodies.

Consolidated Balance Sheet

December 31
NORANDA MINES LIMITED
(Incorporated under the laws of Ontario)

ASSETS	1980	1979
	(in thousands)	
Current assets		
Cash and short-term notes	$ 64,147	$ 10,033
Marketable investments, at cost less amounts written off (quoted market value $222,205,000; 1979 — $20,027,990)	161,280	15,370
Accounts, advances and tolls receivable	578,063	702,902
Inventories	805,992	760,488
	1,609,482	1,488,793
Investment in and advances to associated and other companies (note 2)	529,364	406,089
Fixed assets		
Property, buildings and equipment, at cost	2,622,634	2,158,502
Accumulated depreciation	(1,085,754)	(922,472)
	1,536,880	1,236,030
Other assets (note 4)	262,495	189,298
	$3,938,221	$3,320,210

Auditors' Report

To the Shareholders of
Noranda Mines Limited

We have examined the consolidated balance sheet of Noranda Mines Limited as at December 31, 1980 and the consolidated statements of earnings, retained earnings and changes in financial position for the year then ended. Our examination of the financial statements of Noranda Mines Limited and those subsidiaries and associated companies of which we are the auditors was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances. We have relied on the reports of the auditors who examined the financial

LIABILITIES	1980	1979
	(in thousands)	
Current liabilities		
Bank advances (note 5(c))	$ 182,197	$ 170,334
Accounts payable	476,283	459,741
Taxes payable	115,051	126,118
Debt due within one year (note 5)	14,430	45,237
	787,961	801,430
Deferred liabilities and revenues	26,929	29,897
Taxes provided not currently payable	342,834	229,189
Long-term debt (note 5)	580,477	602,483
Minority interest in subsidiaries	199,038	193,961
Shareholders' equity		
Capital stock (note 7)	772,656	512,301
Retained earnings	1,394,969	1,113,510
	2,167,625	1,625,811
Less the company's pro rata interest in its shares held by subsidiary and associated companies	(166,643)	(162,561)
	2,000,982	1,463,250
	$3,938,221	$3,320,210

(See accompanying notes)

On behalf of the Board

Alfred Powis

A. POWIS, Director

W. P. Wilder

W. P. WILDER, Director

statements of certain other subsidiaries and associated companies.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1980 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Clarkson Gordon
Chartered Accountants

Toronto, Canada,
February 19, 1981.

Consolidated Statements of Earnings and Retained Earnings

For the years ended December 31

EARNINGS	1980	1979
	(in thousands)	
Revenue	$2,889,295	$2,484,690
Expense		
Cost of production	1,942,612	1,520,455
Administration, selling and general expenses	161,835	126,037
Depreciation ($113,866,000; 1979 – $89,073,000) and development charges	129,959	96,699
Exploration written off	57,261	67,612
Interest – net (including long-term debt interest of $39,373,000; 1979 – $60,758,000)	48,421	65,259
	2,340,088	1,876,062
	549,207	608,626
Income and production taxes	242,242	227,045
Minority interest in profits of subsidiaries	28,894	57,163
	271,136	284,208
Earnings before the following	278,071	324,420
Share of earnings in associated companies (note 2)	83,096	85,775
Unusual items (note 11)	47,188	(15,686)
Earnings	$ 408,355	$ 394,509

Earnings per share	$ 4.06	$ 4.70

RETAINED EARNINGS	1980	1979
	(in thousands)	
Balance, beginning of year	$1,113,510	$ 789,840
Earnings	408,355	394,509
	1,521,865	1,184,349
Dividends paid (note 7(c))	126,896	70,839
Balance, end of year	$1,394,969	$1,113,510

(See accompanying notes)

Consolidated Statement of Changes in Financial Position

for the years ended December 31

	1980	1979
	(in thousands)	
Working capital, beginning of year	$ 687,363	$ 281,572
Source of Funds		
Operations —		
Earnings	408,355	394,509
Depreciation and development charges	129,959	96,699
Taxes provided not currently payable	108,665	112,348
Minority interest in earnings of subsidiaries	28,894	57,163
Share of earnings less dividends of associated companies	(58,681)	(54,834)
	617,192	605,885
Working capital acquired through acquisition of Maclaren (note 3(a))	105,077	—
Working capital acquired through Mattagami merger	—	69,721
Issue of shares	12,737	139,011
Long-term financing	64,050	72,327
Fixed asset disposals	17,081	12,124
	816,137	899,068
Use of Funds		
Fixed assets	292,966	284,887
Deferred development, exploration and other expenditures	87,768	34,597
Investments and advances	45,121	(2,099)
Dividends paid to — shareholders	126,896	70,839
— minority shareholders of subsidiaries	23,736	29,203
Current maturities of long-term debt	95,729	71,710
Other	9,763	4,140
	681,979	493,277
Net increase in working capital	134,158	405,791
Working capital, end of year	$ 821,521	$ 687,363

(See accompanying notes)

Notes to Consolidated Financial Statements

December 31, 1980

1. Accounting Policies

The principal accounting policies followed by Noranda Mines Limited and its subsidiaries are summarized under the caption "Accounting Policies".

2. Investments

(a) Investments in and advances to associated and other companies consist of:

	Noranda's Direct Interest	Carrying Value December 1980	1979
		(in thousands)	
Investments carried on an equity basis —			
British Columbia Forest Products Limited	28%	$101,388	$ 91,167
Craigmont Mines, Limited	20%	3,312	3,984
Kerr Addison Mines Limited	41%	6,129	141
Northwood Forest Industries Limited	50%	77,449	66,231
Pamour Porcupine Mines, Limited	49%	8,745	6,685
Placer Development Limited	33%	75,083	53,286
Tara Exploration and Development Company Limited	46%	53,248	51,553
Frialco/Friguia Guinean Consortium	20%	17,005	18,248
Frenswick Holdings Limited investment in Zinor Holdings Limited		84,772	34,400
Associated manufacturing companies		54,213	47,802
Other companies		30,111	15,726
		511,455	389,223
Other investments and advances —			
Shares, at cost less amounts written off		13,019	13,290
Advances & other indebtedness		4,890	3,576
		$529,364	$406,089

(b) Included above are shares carried at a book value of $260,612,000 which had a quoted market value of $688,968,000 at December 31, 1980 ($213,517,000 and $471,707,000, respectively, at December 31, 1979). The latter amount does not necessarily represent the value of these holdings which may be more or less than that indicated by market quotations.

3. Significant Acquisitions

(a) Maclaren Power & Paper Company

On January 14, 1980 the company made an offer to the shareholders of Maclaren Power & Paper Company to purchase all the issued Class A and Class B shares. The basis of the offer was 11 common shares of Noranda for each 6 Class A or Class B shares of Maclaren or, at the option of the Maclaren shareholder, $40 cash for each Maclaren share.

As a result of this offer Noranda acquired all the Class A and Class B shares of Maclaren in exchange for 10,674,794 shares of Noranda and $1,017,000 cash.

The transaction is summarized as follows:

	(in thousands)
Net assets acquired:	
Non-current assets	
Fixed — including increase to fair value of $97,427	$137,539
Other	4,942
	142,481
Long-term liabilities	14,653
	127,828
Working capital — including increases to fair value of $14,726	105,077
Total consideration	$232,905

The accompanying consolidated statement of earnings includes the results of Maclaren from date of acquisition.

(b) Fraser Inc.

On February 19, 1980 the company acquired a further 666,000 shares of Fraser Inc., bringing its interest to 64%, in exchange for 527,810 shares of the company, for a total consideration of $14,713,000.

4. Other Assets

	1980	1979
	(in thousands)	
Deferred development costs	$133,053	$134,802
Deferred preproduction costs	76,000	15,600
Deferred exploration expenditures	36,502	20,982
Other deferred assets	12,250	12,650
Debenture and revenue bond discount and financing expenses, at cost less amortization	4,690	5,264
	$262,495	$189,298

The majority of the deferred preproduction costs in the current year were incurred on new mining projects.

5. Debt

(a) Long-term debt *(in thousands)*:

	Dec. 31 1980	Dec. 31 1979
(i) **Bonds, debentures, notes**		
Noranda Mines Limited		
9¾% notes due July 15, 1982	$ 25,000	$ 25,000
9¾% notes due November 1, 1980	—	25,398
9¾% sinking fund debentures May 1, 1994	39,860	42,300
7½% sinking fund debentures October 1, 1988	19,978	21,751
9¼% sinking fund debentures October 15, 1990	32,227	33,548
Norandex Inc.		
5½%-9¼% mortgage notes payable in monthly instalments to 1990 — ($5.275 U.S.; 1979 — $5,894 U.S.)	5,683	6,274
Noranda Aluminum Inc.		
10½% secured notes due October 1, 1995 ($71,200 U.S.; 1979 — $75,600 U.S.)	73,192	76,885
9.75% note due January 10, 1987 ($30,000 U.S.; 1979 — $30,000 U.S.)	35,229	35,229
9.75% note due 1985 ($20,000 U.S.; 1979 — $20,000 U.S.)	23,400	23,400
8% pollution control revenue bonds due April 1, 2001 — ($10,500 U.S.; 1979 — $10,500 U.S.)	10,315	10,315
Notes payable ($25,000 U.S.)	29,250	—
Brunswick Mining and Smelting Corporation Limited		
5.85% first mortgage sinking fund bonds series "A" maturing April 1, 1986	4,579	7,254
7.25% general mortgage sinking fund bonds, series "A" maturing August 15, 1987	5,207	6,040
11% general mortgage sinking fund bonds, series "B" maturing December 1, 1996	17,349	17,434
Fraser Inc.		
6⅛% sinking fund debentures due April 1, 1987 — ($5,250 U.S.; 1979 — $6,000 U.S.)	5,755	6,545
10¾% sinking fund debentures due June 1, 1992 — ($35,000 U.S.; 1979 — $35,000 U.S.)	36,023	35,612
Notes payable	56,000	42,600
Maclaren Power & Paper Company		
5¾% sinking fund debentures due 1987	9,388	—
Sundry indebtedness	21,930	9,993
	450,365	425,578

	Dec. 31 1980	Dec. 31 1979
(ii) **Obligations under capital leases**		
Noranda Aluminum Inc.		
5.90% Sinking fund industrial revenue bonds, maturing November 1, 1993 ($57,360 U.S.; 1979 — $64,800 U.S.)	61,518	69,824
Other leases	6,249	7,100
	67,767	76,924
(iii) **Other Debt:**		
Notes payable (note 5(b))	76,775	145,218
	594,907	647,720
Debt due within one year	14,430	45,237
Long-term debt	$580,477	$602,483

Maturities of long-term debt are as follows:
1982 — $52,502,000; 1983 — $43,221,000; 1984 — $67,176,000; 1985 — $42,804,000 and subsequent $374,774,000.

(b) $76,775,000 of notes payable, representing promissory notes with maturities in 1981 have been classified as long-term debt to the extent of the unconditional commitment the Company has received from its bankers for contractual term credits expiring December 31, 1984 and October 31, 1986.

(c) Shares of Frenswick Holdings Limited held by certain subsidiaries have been pledged as collateral for bank demand loans of $102,435,000 to those companies.

6. Commitments and Contingent Liabilities

(a) Approved capital projects outstanding total approximately $950,000,000 at December 31, 1980, extending over three years.

(b) The Company and its subsidiaries had guaranteed or were contingently liable for repayment of loans of associated companies to the extent of approximately $34,400,000 at December 31, 1980.

(c) As at December 31, 1980 some of Noranda's pension plans are overfunded and some are underfunded.

The total unfunded obligation is estimated at $28,000,000 and will be funded and absorbed against income through annual instalments not exceeding $2,800,000 within the time limits imposed by government regulations pertaining to pension plans. The overfunding in the other plans exceeds the unfunded amount.

(d) The Company is one of 29 original defendants described as uranium producers and located in various countries to a private antitrust action instituted in 1976 by Westinghouse Electric Corporation in the United States District Court alleging the existence of a conspiracy among such producers to restrain interstate and foreign commerce in uranium. Some of the original defendants have entered into settlement agreements with Westinghouse Electric Corporation and the action has been dismissed as against them. A second action alleging the existence of the same conspiracy was brought against the Company and seven other defendants in 1977 by the Tennessee Valley Authority.

The damages claimed by the plaintiffs are substantial. The Company is defending these actions and is taking appropriate steps to minimize any ultimate liability.

The Company and three associated companies are among fourteen defendants in an action instituted in the Superior Court of the Province of Quebec by various groups of and individual Cree Indians for damages of $8,034,000 and injunctive relief in respect of alleged environmental contamination and other interference with alleged territorial rights of the Cree Indians in Northern Quebec. The Company is defending this action and believes it has a good defence on the merits.

7. Shareholders' equity

(a) Authorized Capital:

At a meeting of shareholders held April 25, 1980 the authorized capital was increased from 120,000,000 to 150,000,000 common shares of no par value and 5,000,000 preferred shares with a par value of $100 each were created.

(b) The following table summarizes the share account:

	December 31 1980 (shares)	December 31 1979 (shares)
Total common shares issued — beginning of year	101,536,449	75,517,632
Issued under stock option plan	125,200	216,740
Issued as stock dividends (note 7(a))	309,694	148,898
Issued under share purchase plan	99,900	—
Issued for Maclaren acquisition (note 3(a))	10,674,794	—
Issued for increased ownership of Fraser (note 3(b))	527,810	—
Issued on merger with Mattagami	—	11,653,179
Issued to Zinor	—	14,000,000
Total common shares issued — end of year	113,273,847	101,536,449
Company's pro rata interest in its shares held by subsidiary and associated companies	11,484,371	11,247,062
Net shares	101,789,476	90,289,387

The earnings per share calculations have been based on the weighted average number of shares outstanding, 100,574,355 in 1980 and 83,865,396 in 1979.

(c) During the year the following dividends were declared:

	1980	1979
Common — $1.25/share (1979 — $.68/share)	$141,132,000	$60,790,000
Class A — (1979 $.17/share)	$ —	$11,725,000
Class B — (1979 $.17/share)	—	871,000
Total	141,132,000	73,386,000
Less the Company's pro rata share of dividends paid to subsidiary and associated companies	14,236,000	2,547,000
Net charge to retained earnings	$126,896,000	$70,839,000

(d) (i) During the year ended December 31, 1980, 125,200 shares were issued under the Company's stock option plan for $1,419,760 and 99,900 shares were issued under the Company's share purchase plan for $2,897,100.

(ii) Options on 255,200 shares were granted under the provisions of the stock option plan during the year ended December 31, 1980. Options on 1,550 shares were cancelled.

At December 31, 1980 options on 395,310 shares were outstanding exercisable at prices varying from $8.34 to $22.91 for periods up to 1986.

(e) Under the Company's share purchase plan, shares are sold to a trustee for resale to employees financed by an interest-free loan from the Company. At December 31, 1980, the amount of the loan included in accounts receivable was $5,062,000.

(f) Shareholders have the right to receive either cash dividends or the equivalent in common stock. Under an exemption order of the Ontario Securities Commission the Company may purchase for cancellation on an annual basis through the facilities of the Toronto Stock Exchange a number of common shares approximately corresponding in number to the common shares issued by it as stock dividends, subject to certain conditions. During 1980 309,694 shares were issued as stock dividends and no shares were purchased for cancellation.

8. Oil and Gas

The Company conducts oil and gas programs in which certain other parties have earned an interest. At December 31, 1980 the Company's interest was 64.58% in the Elmworth/Wapiti properties and 60.42% in other properties. Net expenditures to date by the Company on these programs are reflected on the balance sheet in the amount of $230,174,000.

9. Related Party Transactions

The following summarizes the related party transactions during the year between Noranda and associated companies.

(a) Sale of goods and services in the normal course of business amounted to $39,065,000 and gave rise to accounts receivable at December 31, 1980 of $3,306,000.

(b) Purchase of goods and services in the normal course of business amounted to $28,820,000 and gave rise to accounts payable at December 31, 1980 of $6,402,000.

(c) Certain corporate costs which were shared with associated companies amounted to $1,289,000.

(d) The Company and its subsidiary and associated companies participate in a short term investment pool. Interest charges and credits are calculated at market rates.

10. Business Segment Information

Operations and identifiable assets by industry segment are set out on page 40 in the table of Industry Segment Information.

Components of each industry segment are described in their respective sections of the annual report on pages 12 to 28.

Operations and identifiable assets by geographic segment, as well as export sales of domestic operations, are as follows:

	1980	1979
	(in thousands)	
Revenue		
Canada — domestic	$ 988,968	$ 955,818
— export	1,100,828	853,915
	2,089,796	1,809,733
U.S.A.	799,499	674,957
Total revenue	2,889,295	2,484,690
Segment operating profit		
Canada	593,827	654,574
U.S.A.	108,250	86,925
Total	702,077	741,499
Identifiable assets		
Canada	3,059,136	2,768,912
U.S.A.	653,658	525,895
	$3,712,794	$3,294,807
Cash and marketable investments	225,427	25,403
Total	$3,938,221	$3,320,210

11. Unusual Items

(a) Sale of Koongarra —
During the year the company disposed of its interest in the Koongarra uranium project in Australia. The proceeds were $57,300,000 resulting in a gain on sale of $47,188,000. The sale agreement provides for a further payment of about $75,000,000 U.S., contingent upon the decision to place the property in production.

(b) The unusual items in 1979 consisted of Noranda's share of the write down by Kerr Addison Mines Limited of its investment in the Agnew Lake uranium mine, $24,528,000, and Noranda's share of the gains realized by Kerr Addison resulting from the sale of certain assets, $8,842,000, net of tax.

Industry Segment Information

	1980	1979
	(in thousands)	
Revenue (1)		
Copper operations	$ 599,524	$ 512,938
Other mining & metallurgical operations	747,296	726,300
Mining & metallurgical operations	1,346,820	1,239,238
Manufacturing operations	1,111,342	948,486
Forest products operations	619,607	457,417
	3,077,769	2,645,141
Less: inter-segment sales	(200,000)	(170,000)
Plus: investment income	11,526	9,549
Total	$2,889,295	$2,484,690
Segment operating profit		
Copper operations	$ 196,550	$ 243,386
Other mining & metallurgical operations	295,521	347,620
Mining & metallurgical operations	492,071	591,006
Manufacturing operations	112,227	86,587
Forest products operations	97,779	63,906
Total Segment Operating Profit	702,077	741,499
Exploration written-off	(57,261)	(67,612)
Income and production taxes	(242,242)	(227,045)
Minority interest	(28,894)	(57,163)
Share of earnings in associated companies	83,096	70,089
Interest expense	(48,421)	(65,259)
Net earnings	$ 408,355	$ 394,509
Earnings after taxes		
Copper operations	$ 121,423	$ 178,152
Other mining & metallurgical operations	178,348(3)	148,522(2)
Gross mining & metallurgical operations	299,771	326,674
Less: exploration written-off	30,023	28,707
Net mining & metallurgical operations	269,748	297,967
Manufacturing operations	84,211	67,519
Forest products operations	74,217	63,699
Earnings before borrowing cost	428,176	429,185
Less: cost of borrowing* (net of tax)	19,821	34,676
Net earnings	408,355	394,509

*net of investment income

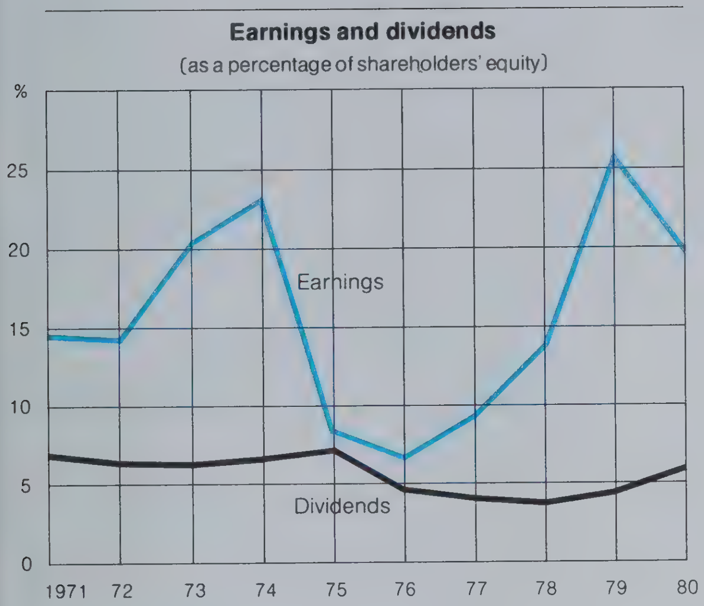
	1980	1979
	(in thousands)	
Total assets employed		
Copper operations	$ 647,386	$ 830,830
Other mining & metallurgical operations	1,568,482	1,262,308
Total mining & metallurgical operations	2,215,868	2,093,138
Manufacturing operations	829,490	800,100
Forest products operations	767,436	506,569
Less: inter-segment receivables/payables	(100,000)	(105,000)
	3,712,794	3,294,807
Cash and marketable investments	225,427	25,403
Total	$3,938,221	$3,320,210
Capital expenditures		
Copper operations	$ 38,534	$ 23,786
Other mining & metallurgical operations	183,520	186,918
Total mining & metallurgical operations	222,054	210,704
Manufacturing operations	37,959	15,693
Forest products operations	32,953	58,490
Total	292,966	284,887
Depreciation and amortization		
Copper operations	$ 27,780	$ 17,821
Other mining & metallurgical operations	54,233	40,971
Total mining & metallurgical operations	82,013	58,792
Manufacturing operations	26,353	25,346
Forest product operations	21,593	12,561
Total	$ 129,959	$ 96,699
Return on net assets (4)		
Mining & metallurgical operations	16.7%	20.4%
Manufacturing operations	12.4%	10.2%
Forest product operations	11.7%	16.3%
Consolidated	14.7%	17.1%

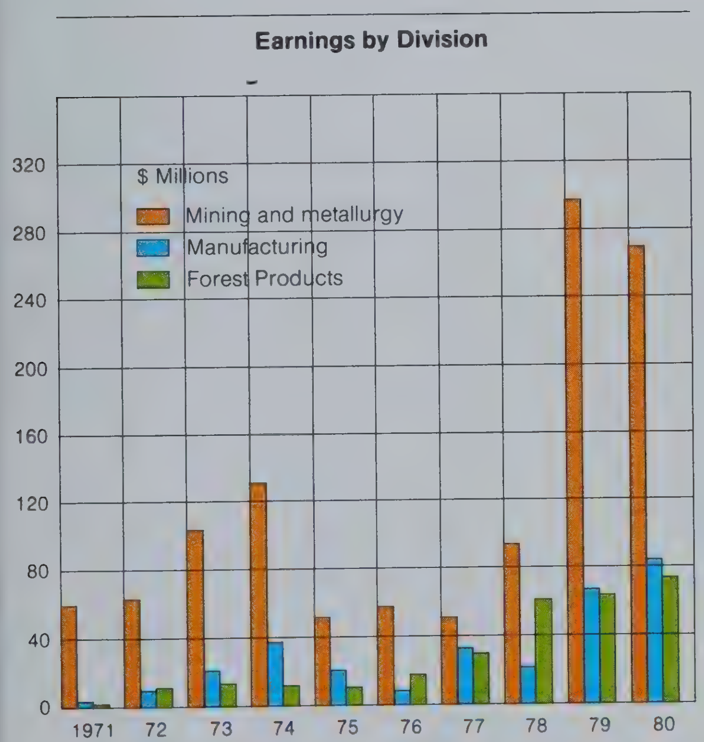
(1) Excludes Noranda's share of revenues of associated companies accounted for on an equity basis, as follows: mining operations $294,383,000, manufacturing $259,000,000, forest products $374,992,000 ($241,310,000, $207,125,000 and $343,123,000 respectively in 1979).

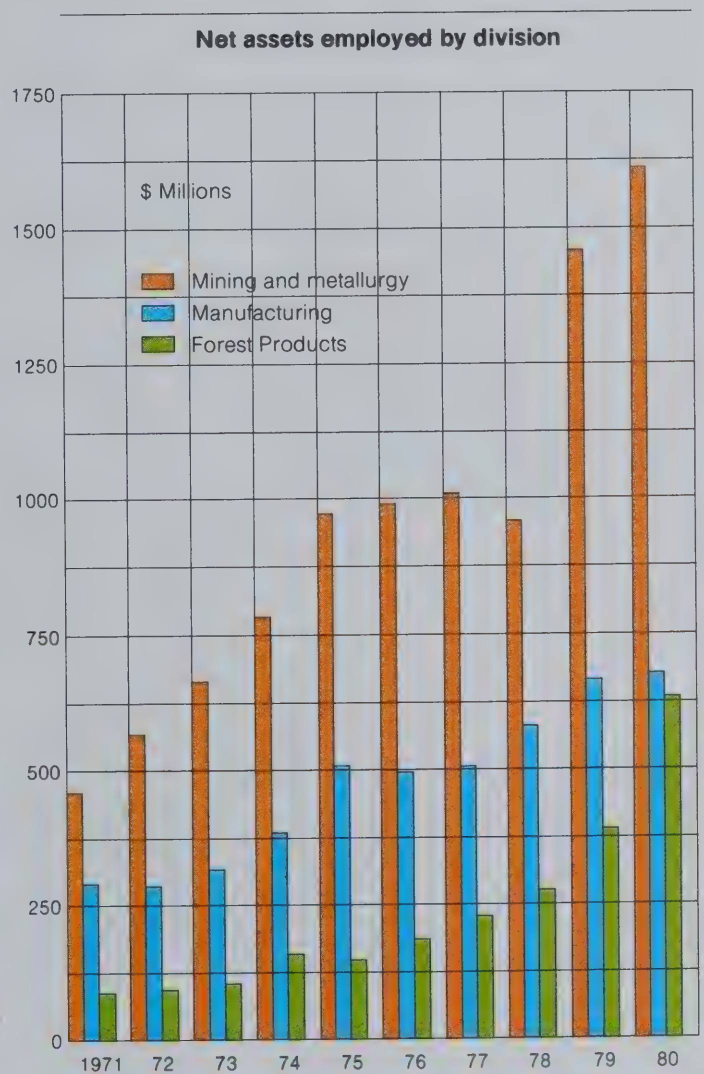
(2) Includes $15,686,000 net loss on unusual items.

(3) Includes $47,188,000 gain on sale of Koongarra.

(4) Earnings before borrowing cost expressed as a percentage of net assets employed (operating working capital, fixed assets at cost less accumulated depreciation, investments and other assets at book value).


Earnings and dividends
(as a percentage of shareholders' equity)
%
25
20
15
10
5
0
Earnings
Dividends
1971
72
73
74
75
76
77
78
79
80

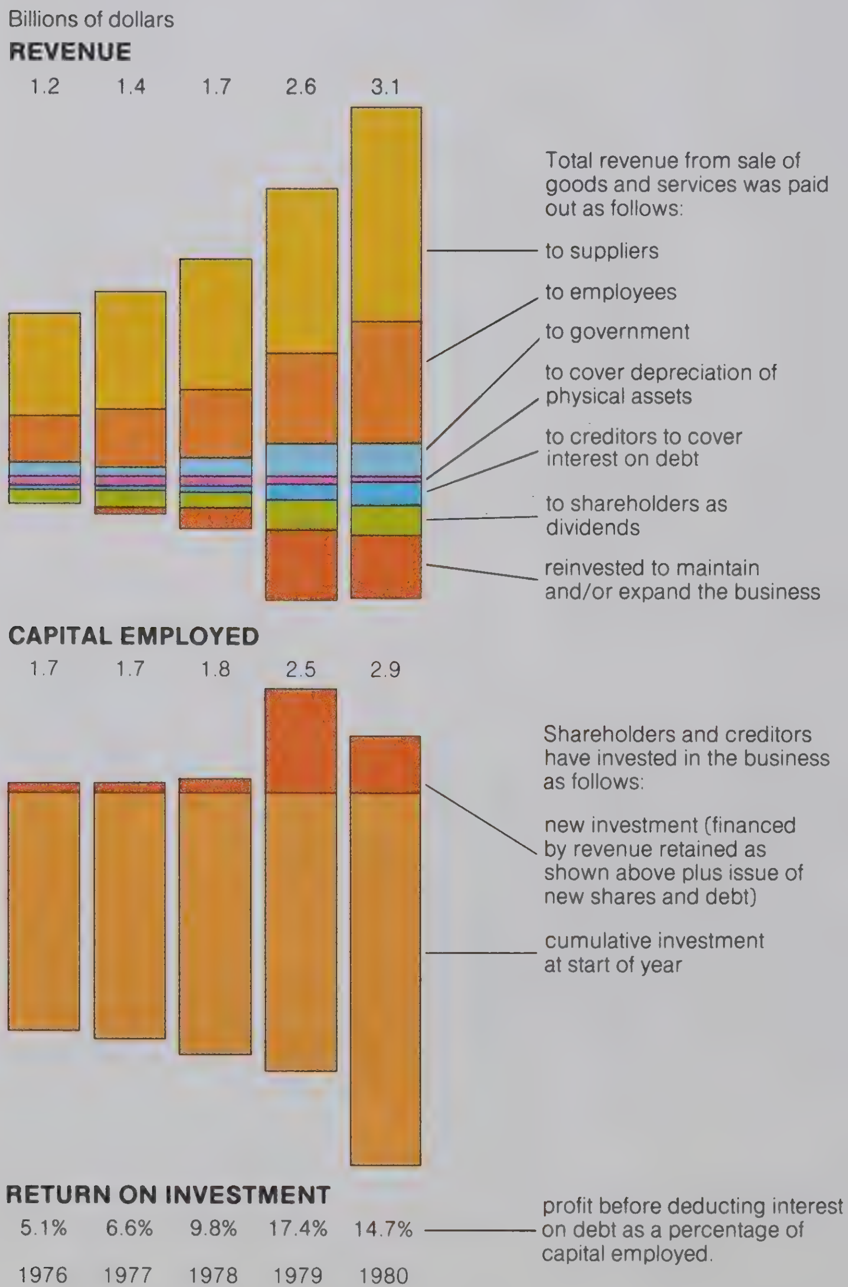

Earnings by Division
$ Millions
Mining and metallurgy
Manufacturing
Forest Products
320
280
240
200
160
120
80
40
0
1971
72
73
74
75
76
77
78
79
80


Net assets employed by division
$ Millions
Mining and metallurgy
Manufacturing
Forest Products
1750
1500
1250
1000
750
500
250
0
1971
72
73
74
75
76
77
78
79
80

Financial Statements another perspective

Over the past five years the value of all goods and services generated by the Noranda Group has approached $10 billion. The chart below attempts to show both the primary disposition of this large sum and, as well, the invested savings of shareholders and creditors needed to generate this level of business activity.

From the lower portion of the chart it can be seen that the amount of capital now employed has grown to some $2.9 billion. This investment, represented by property, plant, and equipment as well as working capital needed to run the day-to-day business, has been funded approximately 64% by shareholders through their initial investment plus earnings retained in the business and 36% by creditors who have loaned money to the business.



As can be observed from the revenue portion of the chart, shareholders and creditors have received an average of some 6% of revenue each year in the form of dividends and interest. In addition, earnings reinvested in the business, accruing to the account of shareholders, has varied from a low of near zero in 1976 to a high of some 13% of revenue in 1979 and about 10% in 1980. It is this retention of earnings for reinvestment in the business that offers the best measure of economic health.

The return to shareholders and creditors, paid out and retained, has averaged 11.6% on capital employed over the past five years, and has been trending upward, amounting to 14.7% in 1980. Considering the cyclical nature of the industries Noranda operates in, the long lead times on new investment, and the perceptibly higher average risks involved in its business, the trend to a higher return on capital is both welcome and needed.

The bulk of the revenue — some 75% or so — has been paid out to suppliers and employees each year to reimburse them for materials and services rendered.

Government's direct share, in the form of taxes on earnings has averaged about 9% of total revenue or 7% if one excludes the portion of tax deferred due to new spending on plant and equipment. This take has resulted from income tax rates that vary from 35% to 80% of earnings depending on the tax jurisdiction and nature of the business. Of course this calculation excludes sales taxes and municipal property taxes, and the income and other taxes paid by suppliers and employees as a result of their sharing in the total revenue. Based on the fact that government spending is known to be in the order of 40% of our economy's Gross National Product, it can be safely estimated that some 40% of Noranda's revenue finds its way into government hands through all parties who share in this revenue.

Financial History

($ in millions)

	1972	1973	1974	1975	1976	1977	1978	1979	**1980**
Earnings —									
Revenue	584.2	850.6	1,151.9	1,159.3	1,234.8	1,395.8	1,691.1	2,484.7	**2,889.3**
Expense — excluding interest	489.7	721.7	889.9	1,046.5	1,118.1	1,250.3	1,426.0	1,810.8	**2,244.6**
Interest expense	19.2	19.8	33.8	45.3	61.7	71.9	64.8	65.3	**48.4**
Income and production taxes	35.8	54.2	106.6	41.5	25.1	22.7	90.5	227.0	**242.2**
Minority interest in profits of subsidiaries	(2.0)	1.3	17.1	10.1	10.1	12.6	24.8	57.2	**28.9**
Earnings of Noranda and subsidiaries	41.5	53.6	104.5	15.9	19.8	38.3	85.0	324.4	**325.2**
Share of earnings in associated companies	27.8	67.9	50.4	34.6	26.9	33.5	49.3	70.1	**83.1**
Earnings	69.3	121.5	154.9	50.5	46.7	71.8	135.2	394.5	**408.4**
Financial Position —									
Capital employed —									
Working capital	129.3	146.6	182.9	188.0	197.5	167.3	281.6	687.4	**821.5**
Investments and advances	205.5	220.6	326.0	372.2	361.9	387.8	410.0	406.1	**529.4**
Fixed assets — net	526.4	582.7	685.0	805.5	855.5	898.0	958.8	1,236.0	**1,536.9**
Other assets	52.2	69.6	90.8	104.6	118.5	115.8	123.3	189.3	**262.5**
	913.4	1,019.5	1,284.7	1,470.3	1,533.4	1,568.9	1,773.7	2,518.8	**3,150.3**
Capital sources —									
Shareholders' equity	487.9	577.7	692.8	696.4	715.3	758.7	884.4	1,463.2	**2,001.0**
Long-term debt	349.9	335.6	383.7	533.1	603.4	588.9	604.1	602.5	**580.5**
Minority interest in subsidiaries	31.2	44.2	99.9	114.4	120.3	128.2	150.9	194.0	**199.0**
Other	44.4	62.0	108.3	126.4	94.4	93.1	134.3	259.1	**369.8**
	913.4	1,019.5	1,284.7	1,470.3	1,533.4	1,568.9	1,773.7	2,518.8	**3,150.3**
Changes in Financial Position —									
Sources —									
From operations	98.9	135.6	244.3	126.9	83.9	145.9	218.3	605.9	**617.2**
Issue of shares and debt (net)	28.9	(14.3)	38.4	139.3	70.3	(10.1)	36.4	255.8	**228.7**
Other (net)	16.9	11.3	8.9	1.0	8.8	(3.1)	15.7	(21.2)	**(16.4)**
	144.7	132.6	291.6	267.2	163.0	132.7	270.4	840.5	**829.5**
Application —									
Dividends	28.0	32.9	42.3	47.2	28.3	28.3	30.7	70.8	**126.9**
Capital expenditure — Fixed assets	109.6	82.9	101.7	158.2	115.6	119.6	115.1	284.9	**293.0**
Investments and advances (net)	8.9	(36.0)	73.4	31.0	(21.9)	7.3	(2.1)	(2.0)	**45.1**
Other, including acquisitions	8.9	35.5	37.9	25.7	31.6	7.6	(12.5)	81.0	**230.3**
Increase (decrease) in working capital	(10.7)	17.3	36.3	5.1	9.4	(30.1)	114.2	405.8	**134.2**
	144.7	132.6	291.6	267.2	163.0	132.7	270.4	840.5	**829.5**
*** Share data —**									
Per share — $									
Earnings	0.98	1.72	2.20	0.71	0.66	1.01	1.91	4.70	**4.06**
Dividends	0.40	0.47	0.60	0.67	0.40	0.40	0.43	0.85	**1.25**
Market price range — $									
High	14.00	19.79	18.00	13.25	13.25	11.46	13.00	22.83	**33.63**
Low	10.87	13.83	8.88	9.08	8.79	6.54	6.88	12.13	**22.13**
Close	13.96	16.71	9.50	9.71	9.67	8.33	12.25	22.37	**30.00**
Shares outstanding (000)	72,893	73,031	73,327	73,354	73,392	73,394	75,548	101,536	**113,274**

* Previous years data adjusted for the 3 for 1 split in August, 1979

DOMESTIC OPERATING INTERESTS
(December 31, 1980)

Mining and Petroleum

Geco Division, Manitouwadge, Ont.	copper-zinc-silver
Mines Gaspé, Murdochville, Que.	copper
Babine Division, Granisle, B.C.	copper-gold
Boss Mountain Division, Hendrix Lake, B.C.	molybdenum
Central Canada Potash, Colonsay, Sask.	potash
Chadbourne Mine, Noranda, Que.	gold
Lyon Lake Division, Ignace, Ont.	zinc-copper-lead-silver
Matagami Division, Matagami, Que.	zinc-copper-silver
Heath Steele Mines, Newcastle, N.B.	
Little River Joint Venture	copper-zinc-lead-silver
Alberta Sulphate, Horseshoe Lake, Alta.	sodium sulphate
Brenda Mines, Peachland, B.C.	copper-molybdenum
Oil and Gas Division, Calgary, Alta.	oil and gas
Brunswick Mining and Smelting, Bathurst, N.B.	zinc-lead-copper-silver
Camlaren, Yellowknife, N.W.T.	gold
Canadian Hunter, Calgary, Alta.	oil and gas
Kerr Addison Mines, Virginiatown, Ont.	gold
Agnew Lake Mines, Espanola, Ont.	uranium
Mattabi Mines, Ignace, Ont.	zinc-copper-silver
Pamour Porcupine Mines, Pamour, Ont.	gold
Schumacher Division, Schumacher, Ont.	copper-gold
Placer Development, Vancouver, B.C.	
Craigmont Mines, Merritt, B.C.	copper
Endako Mine, Fraser Lake, B.C.	molybdenum
Equity Silver Mine, Houston, B.C.	silver, copper
Gilbraltar Mines, McLeese Lake, B.C.	copper
Placer CEGO Petroleum Calgary, Alta.	oil and gas

Metallurgical

Horne Division, Noranda, Que.	copper smelter
Division Mines Gaspé, Murdochville, Que.	copper smelter
Division CCR, Montreal East, Que.	copper refiner
Belledune Fertilizer, Belledune, N.B.	diammonium phosphate
Brunswick Mining and Smelting, Belledune, N.B.	lead smelter
Canadian Electrolytic Zinc, Valleyfield, Que.	zinc reduction
Federated Genco, Burlington, Ont.	metal-alloys

Forest Products

British Columbia Forest Products, Vancouver, B.C. Mills: Boston Bar, Cowichan, Crofton, Delta, Hammond, Mackenzie, Tilbury and Victoria, B.C.	lumber, pulp, newsprint, plywood and shingles
Donohue St-Felicien Inc., Que.	lumber, pulp
Finlay Forest Industries Ltd., B.C.	lumber, pulp
Pinette & Therrien Mills Limited, B.C.	lumber
Western Forest Products Limited, B.C.	lumber, pulp
Fraser Inc., Edmundston, N.B. Mills: Atholville, Edmundston, Kedgwick and Plaster Rock, N.B.	boxboard, lumber and pulp
Maclaren Power & Paper, Buckingham, Que. Mills: Masson, Thurso and Notre Dame du Laus, Que.	newsprint, pulp and lumber
Sogefor Ltée, Lac-des-Iles, Que.	particle board
Northwood Mills, Toronto, Ont. Building Materials Division Burnaby, B.C., Edmonton and Calgary, Alta., Winnipeg, Man., Brampton and London, Ont., Boucherville and St. Augustin, Que., Moncton, N.B.	lumber and panelboard
Northwood Pulp and Timber, Prince George, B.C. Mills: Houston, Prince George, Shelley and Upper Fraser, B.C., and Chatham, N.B.	lumber, pulp, waferboard and plywood
B.C. Chemicals, Prince George, B.C.	chlorate and tall oil

Manufacturing

Canada Wire and Cable, Toronto, Ont. Plants: Toronto, Fergus and Orangeville, Ont. Montreal East, Que., Winnipeg, Man., Weyburn, Sask., New Westminster, B.C. Industrial Wire & Cable Division, Toronto, Plants: Quebec, Que., Toronto	copper rod, wire and cable
Canwirco Inc., Toronto Plants: Simcoe & Belleville, Ont., Montreal, Que.	magnet wire
Radionics, Toronto	diagnostic medical instruments
Canplas Industries, Barrie, Ont. Plants: Barrie, Ont., and New Westminster, B.C.	plastic moulding
Grandview Industries, (Rexdale) Toronto Plants: Rexdale, Brampton and Mississauga, Ont., Weyburn, Sask., Langley, B.C.	plastic moulding and extrusion
Noranda Metal Industries, Montreal East, Que. Plants: Montreal East, Que., Fergus and Arnprior, Ont., New Westminster, B.C.	copper sheet, strip, tube and alloys
Norcast Division, Toronto Plants: Mont Joli (2), Que. and Moncton, N.B.	mill liners, grinding media and secondary metal
Wire Rope Industries, Montreal, Que. Plants: Pointe Claire, Que., and Vancouver, B.C.	steel wire rope slings and strands
Gourock Division, Montreal, Que., and Halifax, N.S.	sporting and fishing nets

INTERNATIONAL OPERATING INTERESTS
(December 31, 1980)

American Hunter, Colorado, U.S.A.	oil and gas
Bridon American, Wilkes Barre, Pa., U.S.A.	hi-carbon brush wire and steel wire rope
British Columbia Forest Products Blandin Paper Co., Grand Rapids, Minn., U.S.A.	paper and waferboard
Canada Wire and Cable (International) Alambres Dominicanos, Dominican Republic; Fadaltec, Colombia; Iconel, Venezuela; Industrias Conductores Monterrey, Mexico; Nigerchin Electrical Development Co., Nigeria; Tolley Holdings, New Zealand; Tycan, Australia, Pty. Ltd., Australia; Transwire, South Africa	wire and cable and other manufactured products
Cia Minera Las Cuevas, Mexico	fluorspar
Fraser Inc., Fraser Paper, Madawaska, Maine, U.S.A.	paper
Kerr Addison Mines Mogul of Ireland, Republic of Ireland	zinc-lead
Noranda Aluminum New Madrid, Mo., U.S.A.	aluminum reduction, wire and cable
Norandal, Huntingdon, Tenn., U.S.A.	aluminum sheet and foil
Norandex, Cleveland, Ohio, U.S.A. Plant and 63 distribution centres; Noranda Building Products, Illinois, U.S.A.	aluminum building products
Friguia, Republic of Guinea	alumina
Noranda Lakeshore Mine, Arizona, U.S.A.	copper
Noranda Metal Industries French Tube Division, Newtown, Conn., U.S.A.	specialty tube
Ontario Mine, Utah, U.S.A.	silver, zinc, lead
Placer Development Marcopper Mining, Philippines	copper
McDermitt Mine, Nevada, U.S.A.	mercury
Fox Manufacturing, Australia	industrial equipment and forest products
Tara Exploration and Development Tara Mines, Republic of Ireland	zinc-lead

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